DEPARTMENT OF THE NAVY
FISCAL YEAR (FY) 2003
BUDGET ESTIMATES

JUSTIFICATION OF ESTIMATES
FEBRUARY 2002

RESEARCH, DEVELOPMENT, TEST & EVALUATION, NAVY
BUDGET ACTIVITY 7

Department of the Navy
FY 2000 RDT&E Program

Exhibit R-1

APPROPRIATION: 1319n Research, Development, Test and Evaluation, Navy

DATE: February 2002

R-1 Line Number	Program Element Number	Item Nomenclature	Budget Activity	Thousands of Dollars FY 2001	FY 2002	FY 2003	Security Classification
171			7				
172			7				
173	0604805N	Commercial Operating & Support Savings	7	8.025	0.000	0.000	U
174	0101221N	STRATEGIC SUB & WEAPONS SYSTEM SUPPORT	7	50.146	45.417	40.278	U
175	0101224N	SSBN SECURITY TECHNOLOGY PROGRAM	7	29.811	33.790	34.567	U
176	0101226N	SUBMARINE ACOUSTIC WARFARE DEVELOPMENT	7	0.846	0.987	1.091	U
177	0101402N	NAVY STRATEGIC COMMUNICATIONS	7	0.000	4.168	21.452	U
178	0204136N	F/A-18 SQUADRONS	7	221.267	251.772	204.466	U
179	0204152N	E-2 Squadrons	7	55.694	37.401	19.011	U
180	0204163N	FLEET TELECOMMUNICATIONS (TACTICAL)	7	14.012	23.816	12.576	U
181	0204229N	Tomahawk & TMPC	7	92.456	75.347	94.265	U
182	0204311N	Integrated Surveillance System	7	35.838	38.299	20.405	U
183	0204413N	AMPHIBIOUS TACTICAL SUPPORT UNITS	7	11.604	22.316	6.352	U
184	0204571N	CONSOLIDATED TRAINING SYSTEMS DEVELOPMENT	7	25.206	25.233	31.421	U
185	0204575N	ELECTRONIC WARFARE (EW) READINESS SUPPORT	7	9.693	10.069	6.731	U
186	0205601N	HARM IMPROVEMENT	7	38.544	28.080	60.758	U
187	0205604N	Tactical Data Links	7	25.732	39.013	42.667	U
188	0205620N	SURFACE ASW COMBAT SYSTEM INTEGRATION	7	30.008	27.869	24.424	U
189	0205632N	MK-48 ADCAP	7	15.156	16.979	22.052	U
190	0205633N	Aviation Improvements	7	48.339	44.929	40.915	U
191	0205658N	Navy Science Assistance Program	7	0.000	18.480	4.801	U
192	0205667N	F-14 Upgrade	7	10.974	1.487	0.000	U
193	0205675N	Operational Nuclear Power Systems	7	52.945	54.714	56.804	U
194	0206313M	MARINE CORPS COMMUNICATIONS SYSTEMS	7	96.438	119.716	174.664	U
195	0206623M	MC Ground Combat/Spt Arms Sys	7	38.581	38.547	36.004	U
196	0206624M	MC Combat Services Support	7	5.670	8.408	21.041	U
197	0207161N	TACTICAL AIM MISSILES	7	23.801	16.257	1.957	U
198	0207163N	AMRAAM	7	11.290	10.700	8.124	U
199			7				
202	0303109N	SATELLITE COMMUNICATIONS (SPACE)	7	39.265	53.698	115.903	U
203	0303140N	Information Systems Security Plan	7	30.277	26.668	18.436	U
204			7				
205	0305160N	Def Meteorological Satellite Prog (Space)	7	22.079	22.294	19.801	U
206	0305188N	JOINT C4ISR BATTLE CENTER (JBC)	7	9.458	13.493	21.970	U
211	0305208N	Distributed Common Ground Systems	7	4.419	7.127	4.482	U
212	0305927N	NAVAL SPACE SURVEILLANCE	7	1.411	4.893	9.548	U
213	0308601N	MODELING AND SIMULATION SUPPORT	7	13.377	12.566	7.783	U
214	0702207N	DEPOT MAINTENANCE (NON-IF)	7	37.337	13.448	7.119	U
215	0708011N	Industrial Preparedness	7	67.305	72.459	70.631	U
216	0708730N	MARITIME TECHNOLOGY (MARITECH)	7	9.013	33.269	9.943	U
		Total Operational Systems Development		1,384.854	1,389.030	1,502.145	

Department of the Navy
FY 2000 RDT&E Program
Alphabetic Listing

Exhibit R-1

APPROPRIATION: 1319n Research, Development, Test and Evaluation, Navy

DATE: February 2002

R-1 Line Number	Program Element Number	Item Nomenclature	Budget Activity	Thousands of Dollars FY 1998	FY 1999	FY 2000	Security Classification
209	0305206N	AIRBORNE RECONNAISSANCE SYSTEMS	7	25.964	17.381	5.469	U
183	0204413N	AMPHIBIOUS TACTICAL SUPPORT UNITS	7	11.604	22.316	6.352	U
198	0207163N	AMRAAM	7	11.290	10.700	8.124	U
190	0205633N	Aviation Improvements	7	48.339	44.929	40.915	U
173	0604805N	Commercial Operating & Support Savings	7	8.025	0.000	0.000	U
184	0204571N	CONSOLIDATED TRAINING SYSTEMS DEVELOPMENT	7	25.206	25.233	31.421	U
210	0305207N	DARP, Special Project Aircraft	7	44.520	38.132	11.166	U
205	0305160N	Def Meteorological Satellite Prog (Space)	7	22.079	22.294	19.801	U
211	0305208N	Distributed Common Ground Systems	7	4.419	7.127	4.482	U
179	0204152N	E-2 Squadrons	7	55.694	37.401	19.011	U
185	0204575N	ELECTRONIC WARFARE (EW) READINESS SUPPORT	7	9.693	10.069	6.731	U
178	0204136N	F/A-18 SQUADRONS	7	221.267	251.772	204.466	U
192	0205667N	F-14 Upgrade	7	10.974	1.487	0.000	U
180	0204163N	FLEET TELECOMMUNICATIONS (TACTICAL)	7	14.012	23.816	12.576	U
186	0205601N	HARM IMPROVEMENT	7	38.544	28.080	60.758	U
203	0303140N	Information Systems Security Plan	7	30.277	26.668	18.436	U
182	0204311N	Integrated Surveillance System	7	35.838	38.299	20.405	U
194	0206313M	MARINE CORPS COMMUNICATIONS SYSTEMS	7	96.438	119.716	174.664	U
196	0206624M	MC Combat Services Support	7	5.670	8.408	21.041	U
195	0206623M	MC Ground Combat/Spt Arms Sys	7	38.581	38.547	36.004	U
189	0205632N	MK-48 ADCAP	7	15.156	16.979	22.052	U
212	0305927N	NAVAL SPACE SURVEILLANCE	7	1.411	4.893	9.548	U
191	0205658N	Navy Science Assistance Program	7	0.000	18.480	4.801	U
177	0101402N	NAVY STRATEGIC COMMUNICATIONS	7	0.000	4.168	21.452	U
193	0205675N	Operational Nuclear Power Systems	7	52.945	54.714	56.804	U
202	0303109N	SATELLITE COMMUNICATIONS (SPACE)	7	39.265	53.698	115.903	U
175	0101224N	SSBN SECURITY TECHNOLOGY PROGRAM	7	29.811	33.790	34.567	U
174	0101221N	STRATEGIC SUB & WEAPONS SYSTEM SUPPORT	7	50.146	45.417	40.278	U
176	0101226N	SUBMARINE ACOUSTIC WARFARE DEVELOPMENT	7	0.846	0.987	1.091	U
188	0205620N	SURFACE ASW COMBAT SYSTEM INTEGRATION	7	30.008	27.869	24.424	U
197	0207161N	TACTICAL AIM MISSILES	7	23.801	16.257	1.957	U
187	0205604N	Tactical Data Links	7	25.732	39.013	42.667	U
208	0305204N	TACTICAL UNMANNED AERIAL VEHICLES	7	121.486	72.692	206.359	U
181	0204229N	Tomahawk & TMPC	7	92.456	75.347	94.265	U
171			7				
172			7				
199			7				
200			7				
201			7				
204			7				
		Total Operational Systems Development		1,257.822	1,257.288	1,406.669	

Fiscal Year 2003 Budget Estimates
Budget Appendix Extract Language

RESEARCH, DEVELOPMENT, TEST & EVALUATION, NAVY (RDTEN)

For expenses necessary for basic and applied scientific research, development, test and evaluation, including maintenance, rehabilitation, lease, and operation of facilities and equipment, **[**$11,498,506,000**]** *$12,501,630,000*, to remain available for obligation until September 30, **[**2003**]** *2004: Provided, That funds appropriated in this paragraph which are available for the V–22 may be used to meet unique operational requirements of the Special Operations Forces. (10 U.S.C. 174, 2352–54, 7522; Department of Defense Appropriations Act, 2002; additional authorizing legislation required.)*

Exhibit R-3, Cost Analysis		Date: Jan 2002
APPROPRIATION/BUDGET ACTIVITY RDT&E,N – BA7	Program Element Name & No. PE 0101221N, Strategic Sub & Weapons System Support	Project Name and Number. TRIDENT II – J0951

Cost ($ in Millions)		FY 2001	FY 2002	FY 2003	FY2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Total PE Cost		50.1	45.5	40.3	41.4	41.8	43.1	43.0	CONT.	CONT.
J0951 TRIDENT II		9.2	8.7	0	0	0	0	0	0	9594.5
S0004 TRIDENT Submarine System Improvement		0.6	0.6	5.4	4.4	4.3	5.4	4.7	CONT	CONT
J2228 Technology Applications Program		40.3	36.2	34.9	37.0	37.5	37.7	38.3	CONT	CONT
RDT&E Articles Qty										
Defense Emergency Response Fund (DERF)/Cost of War (COW): J0951			0	30.0	30.0	30.0	0	0	0	90.0
Defense Emergency Response Fund (DERF)/Cost of War (COW): J2228			0	39.9	54.7	71.5	72.5	71.5	CONT.	CONT.

Exhibit R-3, Cost Analysis		Date: Jan 2002
APPROPRIATION/BUDGET ACTIVITY RDT&E,N – BA7	Program Element Name & No. PE 0101221N, Strategic Sub & Weapons System Support	Project Name and Number. TRIDENT II – J0951

A. U) Mission Description and Budget Item Justification:
The TRIDENT II (D5) Submarine Launched Ballistic Missile (SLBM) provides the U.S. a weapon system with greater accuracy and payload capability as compared to the TRIDENT I (C4) system. TRIDENT II enhances U.S. strategic deterrence providing a survivable sea-based system capable of engaging the full spectrum of potential targets with fewer submarines. This PE supports investigations into new technologies which would help mitigate the program impact due to component obsolescence and a rapidly decreasing manufacturing support base. Efforts also include Reentry System and Guidance System Applications efforts. The TRIDENT Submarine System Improvement Program develops and integrates command and control Improvements needed to maintain TRIDENT Submarine operational capability through the life cycle of this vital strategic asset. The program conducts efforts needed to maintain strategic connectivity, ensure platform invulnerability, and reduce lifecycle costs through Obsolete Equipment Replacement (OER) and commonality.

(U) JUSTIFICATION FOR BUDGET ACTIVITY:
This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for operational systems.

B. (U) Program Change Summary:

	FY 2001	FY 2002	FY 2003
FY 2002 President's Budget:	53.2	43.4	71.8
Adjustments to:	-3.1	+2.1	-31.5
FY 2003 President's Budget Submit:	50.1	45.5	40.3

Explanation: Changes from FY 2002 President's Budget to FY 2003 President's Budget submission: The decrease in FY 2001 represents a transfer out for closed account

Exhibit R-3, Cost Analysis		Date: Jan 2002
APPROPRIATION/BUDGET ACTIVITY RDT&E,N – BA7	Program Element Name & No. PE 0101221N, Strategic Sub & Weapons System Support	Project Name and Number. TRIDENT II – J0951

billings (-$1.5M), FY 2001 Navy reprogramming adjustment (-$1.5M), and a government wide recission (-$.01M). The increase in FY 2002 is a combination of a Congressional plus up for RADHARD Electronics in project J2228 (+$2.5M) and a Congressional adjustment (section 8123: Management Reform) of -$0.4M. The decrease in FY 2003 is a result of the combination of the transfer out of -$35.0M for D5 Life Extension (project J2228) to Trident II BA 1 WPN, a +$4.0M plus up (reprogrammed from NAVSEA OPN Subhead 81HM) to project S0004 for VLRA batteries, adjustment for carryover at R&D activities (-$0.3M), and inflation adjustment (-$0.2M).

C. (U) Other Program Funding Summary: See enclosed R-2a for each individual project data.

D. (U) Acquisition Strategy: See enclosed R-2a for each individual project data.

E. (U) Schedule Profile: Not Applicable.

Cost ($ in Millions)		FY 2001	FY 2002	FY 2003	FY2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Project Cost J0951 TRIDENT II		9.2	8.7	0	0	0	0	0	0	9595.9
RDT&E Articles Qty										
Defense Emergency Response Fund (DERF)/Cost of War (COW)			0	30.0	30.0	30.0	0	0	0	90.0

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Exhibit R-3, Cost Analysis		Date: Jan 2002
APPROPRIATION/BUDGET ACTIVITY RDT&E,N – BA7	Program Element Name & No. PE 0101221N, Strategic Sub & Weapons System Support	Project Name and Number. TRIDENT II – J0951

. (U) Mission Description and Budget Item Justification:
The TRIDENT II (D5) Submarine Launched Ballistic Missile (SLBM) provides the U.S. a weapon system with greater accuracy and payload capability as compared to the TRIDENT I (C4) system. TRIDENT II enhances U.S. strategic deterrence by providing a survivable sea-based system capable of engaging the full spectrum of potential targets with fewer submarines. This project supports investigations into new technologies which would help mitigate the program impact due to component obsolescence and a rapidly decreasing manufacturing support base.

NOTE: (U) Defense Emergency Response Fund (DERF)/Cost of War (COW): FY03funding in the amount of $30M to begin an Effective Enhancement (E2) Demonstration intended to demonstrate a near term capability to steer a SLBM warhead to GPS-like accuracy.

Exhibit R-3, Cost Analysis		Date: Jan 2002
APPROPRIATION/BUDGET ACTIVITY RDT&E,N – BA7	Program Element Name & No. PE 0101221N, Strategic Sub & Weapons System Support	Project Name and Number. TRIDENT II – J0951

(U)PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2001 PLAN:
   - (U) ($9.2) SRS: Effort continued in support of phase three development and Fleet alterations for the SLBM Retargeting System. Full obligation is complete.

2. (U) FY 2002 PLAN:
   - (U) ($8.7) SRS: Efforts continue to complete phase three development required for deployment and final implementation of the SLBM Retargeting System Program in October 2003. Full obligation is projected by 3rd quarter of the 1st year.

Exhibit R-3, Cost Analysis		Date: Jan 2002
APPROPRIATION/BUDGET ACTIVITY RDT&E,N – BA7	Program Element Name & No. PE 0101221N, Strategic Sub & Weapons System Support	Project Name and Number. TRIDENT II – J0951

B. (U) Other Program Funding Summary: (Dollars in Thousands)

	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete	Total Program
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

(U) Related RDT&E: N/A

C. (U) Acquisition Strategy:
Contracts will continue to be awarded to those sources who were engaged in the TRIDENT II (D5) development program and are currently engaged in the production and/or operational support of the deployed D5/C4 Strategic Weapons Systems on the basis of Other Than Full and Open Competition pursuant to the authority of 10 U.S.C. 2304 (C) (1) and (3) implemented by FAR 6.302.-1, 3 4.

D. (U) Schedule Profile: Not Applicable.

Exhibit R-3, Cost Analysis		Date: Jan 2002
APPROPRIATION/BUDGET ACTIVITY RDT&E,N – BA7	Program Element Name & No. PE 0101221N, Strategic Sub & Weapons System Support	Project Name and Number. TRIDENT II – J0951

Cost Categories Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost			FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date			Cost To Complete	Total Cost	Target Value of Contract
Ancillary Hardware Development	SS / CPFF	GDDS/MA.	31.2			0	N/A	0	N/A			Cont	Cont	TBD
Ancillary Hardware Development	WR	NSWC/VA.	51.4			9.2	10/00	8.7	10/01			Cont	Cont	TBD
Subtotal Product Development			82.6			9.2		8.7						
Remarks:														
Total Cost			82.6			9.2		8.7				CONT.	CONT	CONT.
Remarks:														

Exhibit R-3 Cost Analysis		Date: Jan 2002
APPROPRIATION/BUDGET ACTIVITY RDT&E,N – BA7	PROGRAM ELEMENT NAME AND NUMBER Strategic Submarine & Weapons System Support, PE 0101221N	PROJECT NAME AND NUMBER Technology Applications J2228

Cost ($ in Millions)		FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	Cost to Complete	Total Cost
Project Cost J2228 Technology Applications Program		40.3	36.2	34.9	37.0	37.5	37.7	38.3	CONT.	CONT.
RDT&E Articles Qty										
Defense Emergency Response Fund (DERF)/Cost of War (COW)			0	39.9	54.7	71.5	72.5	71.5	CONT.	CONT.

A. (U) Mission Description and Budget Item Justification:

This supports implementation of a coordinated Air Force/Navy Reentry System Applications Program as well as the implementation of a Strategic Guidance Applications Program. Reentry Vehicle and Guidance Technology is rapidly eroding beyond the point of being capable to respond to increasing aging phenomena and future requirements. The Nuclear Posture Review examined the infrastructure which supports the nuclear force structure. It concluded that special actions were required to correct the rapidly eroding capability to maintain confidence in the existing weapon systems, and recommended that the reentry vehicle and guidance technology bases should be preserved. That recommendation resulted in the Presidential Decision Directive-30, which directed that programs be established for the reentry vehicle and guidance technology application.

- Through sustainment of the reentry vehicle technology base, confidence in the dependability and reliability of strategic SLBM and ICBM weapon systems will be maintained over the long term when no new systems will be in development. Critical and unique attributes necessary for the design, development and in-service support of current and modernized SLBM reentry systems have been defined and will be maintained to insure a functioning readiness application technical capability in reentry is preserved. Working closely with the Air Force, Navy requirements have been integrated with the Air Force requirements into a comprehensive program. The Program maintains close coordination with the DOD Science and Technology (S&T) community through the Reliance process in order to: leverage S&T programs, ensure system driven technology base requirements are considered in contract awards, eliminate duplication of effort and provide an opportunity to demonstrate appropriate emerging technologies through a reentry flight test evaluation process.

- This program provides a minimum strategic guidance core technology development capability consistent with the Strategic Advisory Group (SAG) recommendations to CINCSTRAT. The SAG recommended that SSP establish a program which preserves this critical design and development core. It is a basic bridge program which develops critical guidance technology applicable to any of the existing Air Force/Navy strategic missiles. The objective is to transition from current capability to a long term readiness status required to support deployed systems. Air Force and Navy guidance technology requirements are integrated and needs prioritized. Efforts are focused on alternatives to currently utilized technologies identified as system "weak links". Current system accuracy and functionality depends upon key technologies which provide radiation hardened velocity, attitude and stellar sensing capabilities. As the underlying technologies that currently provide these

Exhibit R-3 Cost Analysis		Date: Jan 2002
APPROPRIATION/BUDGET ACTIVITY RDT&E,N – BA7	PROGRAM ELEMENT NAME AND NUMBER Strategic Submarine & Weapons System Support, PE 0101221N	PROJECT NAME AND NUMBER Technology Applications J2228

capabilities age and are no longer technically supportable, modern alternatives must be made available in order to allow for orderly replacement. There is no commercial market for these technologies and their viability depends on the strategic community.

NOTE: (U) Defense Emergency Response Fund (DERF)/Cost of War (COW): FY03funding in the amount of $39.9M includes additional funding for RSAP/GAP initiative ($14.4M), solid motor test firing ($7.5M) and RADHARD Application Program ($18.0M)

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2001 PLAN

- (U) ($18.5) Continued Reentry System Applications Program (RSAP). Full obligation is complete.
  FY 2001 efforts include:
  - (U) Continued development and ground testing of reentry vehicle candidate heatshield, nosetip and aft closure materials including those available from Science & Technology (S&T).
  - (U) Conducted replacement heatshield flight test demonstration.
  - (U) Downselected Poly Acrylo Nitrile (PAN) fiber alternate heatshield material candidate for the FY 2005 flight test demonstration.
  - (U) Evaluated aged hardware flight data and observed ground test anomalies; developed risk mitigation concepts for known aging mechanisms.
  - (U) Identified and evaluated low-cost design approaches and components for arming and fuzing applications.
  - (U) Identified and evaluated low-cost inertial sensor technology for reentry body flight test instrumentation.
  - (U) Maintained RSAP technical program plan, conduct system assessments and continue vulnerability & hardening certification process in absence of nuclear under ground testing (UGT) facilities.

- (U) ($21.8) Continued Strategic Guidance Applications Programs (GAP). Full obligation is complete.
  FY 2001 efforts include:

Exhibit R-3 Cost Analysis		Date: Jan 2002
APPROPRIATION/BUDGET ACTIVITY RDT&E,N – BA7	PROGRAM ELEMENT NAME AND NUMBER Strategic Submarine & Weapons System Support, PE 0101221N	PROJECT NAME AND NUMBER Technology Applications J2228

(U) Continued initial Integrated Engineering Environment (IEE)/Strategic Inertial Guidance Hardware Technology Synthesizer (SIGHTS) integration to provide a "real time" hardware-in-the-loop simulation capability for FY 2002. Initiated development of alternative models for incorporation in IEE.

(U) Completed the prototype accelerometer fabrication and initiate testing. Continued Interferometic Fiber Optic Gyro (IFOG) fabrication and testing. Continued the stellar subsystem prototype technology task initiated in FY 2000. Evaluate alternate steller sensor technology. Evaluated circumvention methodology using SIGHTS hardware.

(U) Pursued alternate strategies in order to attain strategic performance from the Hemispherical Resonator Gyro (HRG). Assess producibility for various Alternate PIGA technologies.

(U) Provided Chemical Mechanical Planarization (CMP) capability to the SPAWAR micro-electronic fabrication facility. This metal interconnect technology enhancement allows SPAWAR to manufacture electronic devices using methods compatible with the latest commercial practices. This equipment is required for the development and validation of Radiation Hardened Technology Computer Aided Design (RHTCAD) dose rate response modeling.

Exhibit R-3 Cost Analysis		Date: Jan 2002
APPROPRIATION/BUDGET ACTIVITY RDT&E,N – BA7	PROGRAM ELEMENT NAME AND NUMBER Strategic Submarine & Weapons System Support, PE 0101221N	PROJECT NAME AND NUMBER Technology Applications J2228

2. (U) FY 2002 PLAN

- (U) ($18.9) Continue Reentry System Applications Program. Full obligation is projected by the 3rd quarter of the first year. FY 2002 efforts include:
  - (U) Continue development and ground testing of reentry vehicle candidate heatshield, nosetip, and aft closure materials including those available from Science & Technology (S&T).
  - (U) Evaluate low-cost replacement heatshield flight test demonstration.
  - (U) Establish flight confidence in PAN fiber alternate heatshield material candidate for the FY 2005 flight test demonstration.
  - (U) Develop an updated ground and flight test program to assess performance of reentry components exposed to operational environments beyond their design life; develop and test risk mitigation concepts for known aging mechanisms.
  - (U) Continue evaluation of low-cost design approaches and components for arming and fuzing applications.
  - (U) Continue evaluation of low-cost inertial sensor technology for reentry body flight test instrumentation.
  - (U) Maintain RSAP technical program plan, conduct system assessments and continue vulnerability & hardening certification process in absence of nuclear under ground testing (UGT) facilities.

- (U) ($17.3) Continue Strategic Guidance Applications Programs (GAP). Full obligation is projected by the 3rd quarter of the 1st year. FY 2002 efforts include:
  - (U) Initiate IEE virtual implementation validation. Complete IEE/SIGHTS integration to evaluate alternate system architectures. Initiate incorporation of alternate sensor technologies, PIGA and system circumvention methodology into SIGHTS.
  - (U) Complete the prototype IFOG fabrication and initiate testing. Initiate alternate stellar subsystem design based on current sensor technology. Survey emergent technologies for alternate gyro and PIGA. Perform radiation testing of

Exhibit R-3 Cost Analysis		Date: Jan 2002
APPROPRIATION/BUDGET ACTIVITY RDT&E,N – BA7	PROGRAM ELEMENT NAME AND NUMBER Strategic Submarine & Weapons System Support, PE 0101221N	PROJECT NAME AND NUMBER Technology Applications J2228

current electronics technology.

(U) Continue test of Hemispherical Resinator Gyro (HRG) prototype hardware. Testing will assess the best approach to attain Strategic performance.

(U) Semiconductor process complexity has been increasing steadily and doubling in density every eighteen to twenty four months. Radiation hardened electronics have typically lagged commercial state-of-the art electronics by two to three generations. Every new generation of electronics has introduced a unique set of radiation response problems. A radiation hardened program is required to address these production, qualification and manufacturing issues. The tasks funded under the GAP program have established the framework for addressing Rad Hard electronics, but do not include the detailed tasking required to fully address all the Rad Hard issues. The Radiation Hardened Application efforts herein will compliment the Gap electronic part activities by specifically focusing on those tasks required to ensure producibility of Rad Hard parts.

Funding herein is requested for:

(a) A Productization and Qualification Program for Digital, Analog and Mixed Signal Radiation Hardened Electronics which will:

- o Evaluate commercial process improvements/enhancements and access for Rad Hard part products
- o Identify and eliminate yield inhibitors and manufacturing issues
- o Modify process and design rule to improve yield
- o Optimize models (process, device, library)
- o Demonstrate consistent yield
- o Establish statistical process control

(b) Radiation Hardened Technology computer aided design

Exhibit R-3 Cost Analysis		Date: Jan 2002
APPROPRIATION/BUDGET ACTIVITY RDT&E,N – BA7	PROGRAM ELEMENT NAME AND NUMBER Strategic Submarine & Weapons System Support, PE 0101221N	PROJECT NAME AND NUMBER Technology Applications J2228

efforts which will:

- o Enhance existing commercial Technology Computer Aided design tools to include radiation and reliability mechanisms
- o Develop physical models for these mechanisms
- o Validate simulations against actual devices produced with a controlled process
- o Maintain commercial software licenses

3. (U) FY 2003 PLAN

- (U) ($19.8) Continue Reentry System Applications Program. Full obligation is projected by the 3rd quarter of the first year.
  FY 2003 efforts include:
  - (U) Continue development and ground testing of reentry vehicle candidate heatshield, nosetip and aft closure materials including those available from Science & Technology (S&T).
  - (U) Identify and evaluate next generation low-cost heatshield material candidates.
  - (U) Conduct an updated ground and flight test program to assess performance of reentry components exposed to operational environments beyond their design life; evaluate risk mitigation concepts for known aging mechanisms.
  - (U) Downselect low-cost design approach and components for Arming and Fuzing applications.
  - (U) Downselect a low-cost inertial sensor technology for Reentry Body (RB) flight test instrumentation.
  - (U) Maintain RSAP technical program plan, conduct system assessments and continue Vulnerability & Hardening certification process in absence of Nuclear Under Ground Testing (UGT) facilities.

- (U) ($15.1) Continue Strategic Guidance Applications Programs (GAP). Full obligation is projected by the 3rd quarter of the 1st year. FY 2003 efforts include:

Exhibit R-3 Cost Analysis		Date: Jan 2002
APPROPRIATION/BUDGET ACTIVITY RDT&E,N – BA7	PROGRAM ELEMENT NAME AND NUMBER Strategic Submarine & Weapons System Support, PE 0101221N	PROJECT NAME AND NUMBER Technology Applications J2228

(U) Continue to develop alternate models for incorporation in IEE. Incorporate IFOG, the HRG, and the Alternate PIGA into SIGHTS. Utilize IEE/SIGHTS capability to perform system architecture/design tradeoffs in support of technology downselect in FY 2006 for D5 Life Extension.

(U) Continue to evaluate alternate sensor technology, accelerometer, gyro, stellar and electronics for application in the D5 Life Extension Guidance system and/or replacement of system weak links. Begin prototype radiation-hard sensor build and test.

B.(U) Other Program Funding Summary:

FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	To COMPLETE	PROGRAM
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

(U) Related RDT&E: N/A

C. (U) Acquisition Strategy:
Contracts will continue to be awarded to those sources who were engaged in the TRIDENT II (D5) development program and are currently engaged in the production and/or operational support of the deployed D5/C4 Strategic Weapons Systems on the basis of Other Than Full and Open Competition pursuant to the authority of 10 U.S.C. 2304 (c) (1) and (3) implemented by FAR 6.302.-1, 3 4.

D (U) Schedule Profile: Not Applicable

Exhibit R-3 Cost Analysis		Date: Jan 2002
APPROPRIATION/BUDGET ACTIVITY RDT&E,N – BA7	PROGRAM ELEMENT NAME AND NUMBER Strategic Submarine & Weapons System Support, PE 0101221N	PROJECT NAME AND NUMBER Technology Applications J2228

Cost Categories <u>SUPPORT AND MANAGEMENT</u>	Contract Method & Type	Performing Activity & Location	Total PYs Cost			FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contrac
TECHNOLOGY APPLICATIONS	SS – CPFF	LMMS/CAL	34.1			4.9	10/00	6.0	10/01	6.0	10/02	CONT.	CONT	CONT.
TECHNOLOGY APPLICATIONS	WR	NSWC/VA	26.1			5.4	10/00	4.8	10/01	5.1	10/02	CONT.	CONT.	CONT.
TECHNOLOGY APPLICATIONS	MIPR	DOE/NM	5.3			4.4	10/00	2.9	10/01	3.1	10/02	CONT.	CONT.	CONT.
TECHNOLOGY APPLICATIONS	SS – CPFF	CSDL/MA	2.6			2.7	10/00	4.2	10/01	3.9	10/02	CONT.	CONT.	CONT.
TECHNOLOGY APPLICATIONS	SS – CPFF	KAMAN/CO	2.8			0.7	10/00	0.8	10/01	1.0	10/02	CONT.	CONT.	CONT.
TECHNOLOGY APPLICATIONS	SS-CPFF	ARL/TX								0.2	10/02	CONT.	CONT.	CONT.
TECHNOLOGY APPLICATIONS	SS-CPFF	SAIC/FLA								0.3	10/02	CONT.	CONT.	CONT.
TECHNOLOGY APPLICATIONS	SS-CPFF	MARK/CA								0.1	10/02	CONT.	CONT.	CONT.
TECHNOLOGY APPLICATIONS	SS – CPFF	CSDL/MA	73.8			15.5	10/00	17.5	10/01	15.2	10/02	CONT.	CONT.	CONT.
TECHNOLOGY APPLICATIONS	SS - CPFF	CNSW/IN				6.7	11/00							
Subtotal Support			144.7			40.3		36.2		34.9				

Remarks

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification						DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY//BA-7**				R-1 ITEM NOMENCLATURE Submarine Acoustic Warfare Development/0101226N					
COST ($ in Millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Total PE Cost	**0.846**	**0.987**	**1.091**	**3.078**	**8.821**	**8.988**	**9.158**	**CONT.**	**CONT.**
Submarine Defensive Warfare/V1265	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
Submarine Defensive Warfare/F1265	**0.846**	**0.987**	**1.091**	**3.078**	**8.821**	**8.988**	**9.158**	**CONT.**	**CONT.**
Quantity of RDT&E Articles									

A. Mission Description and Budget Item Justification: This project develops a Submarine Defensive Warfare System (SDWS) to improve the effectiveness and survivability of all classes of US submarines. Project efforts consist of a new acoustic sensor, the Sparsely Populated Volumetric (SPVA), that will improve the performance of acoustic intercept systems (AN/WLR-9) and will provide a ranging capability for submarines. Integrate technology insertion of COTS through Acoustic Rapid COTS Insertion (ARCI) and Advanced Process Build (APB) software improvements to the AN/WLR-9 system. Next Generation Countermeasure (NGCM) including Weapons Analysis Facility (WAF) simulation analysis capability provides the US Navy with testing of hardware and software within detailed representations of acoustic environments. Provides integration of the Anti-Torpedo Torpedo (ATT) All Up Round (AUR) for Submarine Force use.

1. (U) FY 2001 Plan:
   - ($0.846) Performed Acoustic Intercept Sensor Development.

2. (U) FY 2002 Plan:
   - ($0.987) Continue Acoustic Intercept Technology Transition and conduct at-sea test. Begin WAF Analysis.

3. (U) FY 2003 Plan:
   - ($1.091) Continue WAF Analysis.

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: February 2002
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY//BA-7**	R-1 ITEM NOMENCLATURE Submarine Acoustic Warfare Development/0101226N

B. Program Change Summary:

	FY 2001	FY 2002	FY 2003
(U) FY 2002 President's Budget:	0.879	0.996	
(U) Appropriated Value	0.846	0.987	
(U) Adjustments to: FY 2001/2002 Appropriated Value/ FY 2002 President's Budget:	-0.033	-0.009	1.091
(U) FY 2003 President's Budget Submit:	0.846	0.987	1.091

Funding: FY 2001: Reduction of -0.033 due to 0.7% Pro-Rata Reduction ((-0.006), Government-Wide Recission (-0.002), FY01 SBIR (-0.006), June 2001 BTR (-0.017) , and 2001 Actuals (-0.002)).
FY 2002: Reduction of -0.009 due to Management Reform Initiatives (-0.009).
FY 2003: Reduction of -0.011 due to Miscellaneous Reductions.

Schedule: Not Applicable

Technical: Not Applicable

C. Other Program Funding Summary:

OPN BLI: 221000/221005 Submarine Acoustic Warfare Systems

FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete	Total Cost
10.837	13.504	21.686	20.625	17.492	18.853	26.538	CONT.	CONT.

D. Acquisition Strategy: Multi-year competitive contract for the WLY-1 backfit market starting in FY01 has been cancelled. Funds the transition to the WLR-9 and ARCI Program of a new Acoustic Intercept sensor (SPVA) for AI processing.

E. Schedule Profile: See Attached Schedule

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY//BA-7**	R-1 ITEM NOMENCLATURE Program Element (PE) Name and No. Submarine Acoustic Warfare Development/0101226N

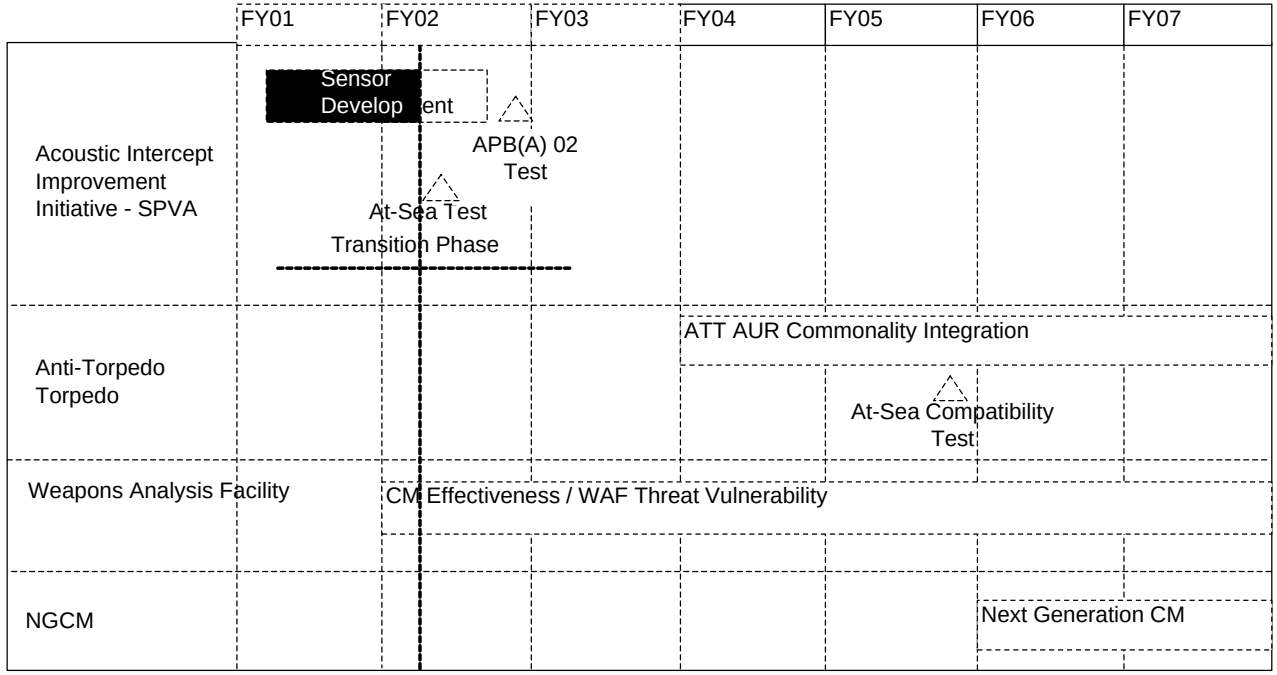

Exhibit R-3 Cost Analysis (page 1)										DATE: **February 2002**		
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT				PROJECT NAME AND NUMBER						
RDT&E, N/BA-7		**Sub Acoustic Warfare Dev/0101226N**				Submarine Defensive Warfare Systems/F1265						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	C/CPAF	Northrop Grum Melville, NY	37.462							0.000	37.462	37.661
Ancillary Hardware Development											0.000	
Systems Engineering	C/CPAF	General Dyn Groton,CT	4.778							0.000	4.778	5.717
Systems Engineering	WR	PNSY	0.730							0.000	0.730	0.830
Systems Engineering	WR	NUWC Newport, RI	3.312	0.583	11/00	0.747	11/01	0.851		CONT.	CONT.	CONT.
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			46.282	0.583		0.747		0.851		0.000	48.463	
Remarks:												
Development Support Equipment											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
GFE											0.000	
Miscellaneous	WR		0.196	0.000	Various	0.000	Various	0.000	Various	CONT.	CONT.	CONT.
Subtotal Support			0.196	0.000		0.000		0.000		0.000	0.196	
Remarks:												

Exhibit R-3 Cost Analysis (page 2)										DATE: **February 2002**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA-7**			PROGRAM ELEMENT **Sub Acoustic Warfare Dev/0101226N**			PROJECT NAME AND NUMBER Submarine Defensive Warfare Systems/F1265						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	OPTEVFOR Norfolk, VA	0.055							0.000	0.055	0.055
Operational Test & Evaluation	WR	OPTEVFOR Norfolk, VA	0.076								0.076	0.076
Operational Test & Evaluation											0.000	
GFE											0.000	
Subtotal T&E			0.131	0.000		0.000		0.000		0.000	0.131	
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support	C/CPFF	RM Vredenburg Reston, VA	1.517	0.200	04/01	0.190	01/02	0.190	01/03	CONT.	CONT.	CONT.
Travel		PMS415		0.063		0.050		0.050		CONT.	CONT.	CONT.
Labor (Research Personnel)											0.000	
Overhead											0.000	
Subtotal Management			1.517	0.263		0.240		0.240		0.000	2.260	
Remarks:												
Total Cost			48.126	0.846		0.987		1.091		CONT.	CONT.	CONT.
Remarks:												

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification								DATE: February 2002			
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7**						R-1 ITEM NOMENCLATURE 0101402N Navy Strategic Communications					
COST ($ in Millions)	Prior Years Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost				**4.168**	**21.452**	**46.681**	**42.566**	**24.634**	**10.713**	**1.588**	**151.802**
H0793 E-6 Service Life Assessment					**2.899**	**3.200**	**1.000**				**7.099**
H3002 Navy Strategic Communications Project				**4.168**	**18.553**	**43.481**	**41.566**	**24.634**	**10.713**	**1.588**	**144.703**
Quantity of RDT&E Articles Not Applicable											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:
(H0793) In FY2003 a Service Life Assessment of selected critical components will be performed on the E-6B. The original service life of this airframe was 27,000 hours based on a prescribed weight and expected operational usage. Current weight and operational usage exceed those original values and lessen, by some unknown value, the original 27,000 hour airframe fatigue life. The contractor will analyze fleet aircraft and review onboard recorder data in order to generate an updated repeated loads spectrum. The contractor will then update the external/internal loads analysis associated with the additional weight and operational usage data. Utilizing the data from the first two steps, the contractor will update the existing E-6 Durability and Damage Tolerance Assessments. This data will then allow the contractor to update the Reliability-Centered Maintenance (RCM) analysis, individual aircraft tracking, and optimize the E-6 Maintenance Plans.

(H3002) This funding replaces the existing Digital Airborne Intercommunications Switching System (DAISS), Very Low Frequency (VLF) transmit terminal, Mission Computer System (MCS), Ultra-High Frequency Command, Control and Communications (UHF C3) system, STU-III/Crypto, High Power Transmit Set (HPTS), and adds Open Systems Architecture (OSA), High Frequency (HF) Rebroadcast, Low Frequency Simultaneous Operations (LF SIMOP) and other battlestaff and mission system capabilities to the E-6 Aircraft.

(U) JUSTIFICATION FOR BUDGET ACTIVITY:
This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

R-1 SHOPPING LIST - Item No. 177

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2002			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0101402N Navy Strategic Communications					PROJECT NUMBER AND NAME H0793 E-6 Service Life Assessment					
COST ($ in Millions)	Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost					**2.899**	**3.200**	**1.000**				**7.099**
RDT&E Articles Qty											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:
(H0793) In FY2003 a Service Life Assessment selected critical components will be performed on the E-6B. The original service life of this airframe was 27,000 hours based on a prescribed weight and expected operational usage. Current weight and operational usage exceed those original values and lessen, by some unknown value, the original 27,000 hour airframe fatigue life. The contractor will analyze fleet aircraft and review onboard recorder data in order to generate an updated repeated loads spectrum. The contractor will then update the external/internal loads analysis associated with the additional weight and operational usage data. Utilizing the data from the first two steps, the contractor will update the existing E-6 Durability and Damage Tolerance Assessments. This data will then allow the contractor to update the Reliability-Centered Maintenance (RCM) analysis, individual aircraft tracking, and optimize the E-6 Maintenance Plans.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2001 ACCOMPLISHMENTS: - Not Applicable

2. FY 2002 PLANS: - Not Applicable

3. FY 2003 PLANS:
(U) ($ .491) Naval Air Warfare Center (NAWC) Field Support
(U) ($ .130) Travel
(U) ($ 2.278) Engineering Support - Define the operational usage and loads for the E-6B configuration, thereby defining service spectra. Identify life-critical locations, determine load-to-stress relationships for those locations, and calculate critical fatigue lives.

R-1 SHOPPING LIST - Item No. 177

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0101402N Navy Strategic Communications	H0793 E-6 Service Life Assessment

(U) B. PROGRAM CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:			
(U) Adjustments from the President's Budget:			
(U) FY 2003 President's Budget Submit:			2.899

CHANGE SUMMARY EXPLANATION:

(U) Funding: Not Applicable

(U) Schedule: Not Applicable

(U) Technical: Not Applicable

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete
056400 E-6A Series	60.029	73.876	57.099	30.272	20.761	39.440	51.437	211.080

R-1 SHOPPING LIST - Item No. 177

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N / BA-7	0101402N Navy Strategic Communications	H0793 E-6 Service Life Assessment	

(U) D. ACQUISITION STRATEGY: SLAP will be a sole source program due to the proprietary nature of the data. This will be a Firm Fixed Price (FFP) Contract. Contract Award is expected in 1st quarter FY03. SLAP analysis is the precursor to an effective SLEP program, needed to keep this aircraft a viable Strategic Asset.

(U) E. SCHEDULE PROFILE:

	FY 2001	FY 2002	FY2003	TO COMPLETE
(U) Program Milestones				
(U) Engineering Milestones				Initial Report (3Q 05) Final Report (4Q 05)
(U) T&E Milestones				
(U) Contract Milestones			Contract Award (1Q 03)	

R-1 SHOPPING LIST - Item No. 177

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2) | DATE: **February 2002**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-7**

PROGRAM ELEMENT: 0101402N Navy Strategic Communications

PROJECT NUMBER AND NAME: H0793 E-6 Service Life Assessment

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Subtotal T&E												
Remarks:												
Contractor Engineering Support	FFP	Boeing Seattle, WA						2.278	12/02	3.301	5.579	5.579
Government Engineering Support	WX	NAWCAD PAX RIVER, MD						0.491	10/02	0.710	1.201	
Travel								0.130	Various	0.189	0.319	
Subtotal Management								2.899		4.200	7.099	
Remarks:												
Total Cost								2.899		4.200	7.099	

Remarks: There is no Product Development or Support related to this program.

R-1 SHOPPING LIST - Item No. 177

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2002			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0101402N Navy Strategic Communications					PROJECT NUMBER AND NAME H3002 Navy Strategic Communications Project					
COST ($ in Millions)	Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost				**4.168**	**18.553**	**43.481**	**41.566**	**24.634**	**10.713**	**1.588**	**144.703**
RDT&E Articles Qty											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:
(H3002) This funding replaces the existing Digital Airborne Intercommunications Switching System (DAISS), Very Low Frequency (VLF) transmit terminal, Mission Computer System (MCS), Ultra-High Frequency Command, Control and Communications (UHF C3) system, STU-III/Crypto, High Power Transmit Set (HPTS), and adds Open Systems Architecture (OSA), High Frequency (HF) Rebroadcast, Low Frequency Simultaneous Operations (LF SIMOP) and other battlestaff and mission system capabilities to the E-6 Aircraft.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2001 ACCOMPLISHMENTS: - Not Applicable

2. FY 2002 PLANS:
(U) ($ 2.093) Funding supports the replacement of DAISS, VLF, MCS, UHF C3 System, STU-III/Crypto and HPTS, and the addition of OSA, HF Rebroadcast, LF SIMOP and other capabilities to the E-6.
(U) ($ 1.849) Contract support services for replacement of DAISS, VLF, MCS, UHF C3 System, STU-III/Crypto and HPTS, and the addition of OSA, HF Rebroadcast, LF SIMOP and other capabilities to the E-6.
(U) ($ .100) Travel requirements to support Program and NAWC personnel.
(U) ($ .126) Portion of extramural program reserved for Small Business Innovation Research assessment.

3. FY 2003 PLANS:
(U) ($ 9.234) Funding supports the replacement of DAISS, VLF, MCS, UHF C3 System, STU-III/Crypto and HPTS, and the addition of OSA, HF Rebroadcast, LF SIMOP and other capabilities to the E-6.
(U) ($ 8.745) Contract support services for replacement of DAISS, VLF, MCS, UHF C3 System, STU-III/Crypto and HPTS, and the addition of OSA, HF Rebroadcast, LF SIMOP and other capabilities to the E-6.
(U) ($ .574) Travel requirements to support Program and NAWC personnel.

R-1 SHOPPING LIST - Item No. 177

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0101402N Navy Strategic Communications	H3002 Navy Strategic Communications Project

(U) B. PROGRAM CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:		4.205	
(U) Adjustments from the President's Budget:		-0.037	
(U) FY 2003 PRESIDENT'S Budget Submit:		4.168	18.553

CHANGE SUMMARY EXPLANATION:

(U) Funding: FY-2002 net decrease of $.037 million is for an undistributed Congressional reduction.

(U) Schedule: N/A

(U) Technical: N/A

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete
056400 E-6A Series	60.029	73.876	57.099	30.272	20.761	39.440	51.437	211.080

R-1 SHOPPING LIST - Item No. 177

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N / BA-7	0101402N Navy Strategic Communications	H3002 Navy Strategic Communications Project	

(U) D. ACQUISITION STRATEGY: Competitively Award Cost Plus Development Contract with follow on FFP Production Contract. VLF Transmitter will be designed, developed and tested by SPAWAR (SSC San Diego) under a separate effort. Funds will be sent via Project Directive (PD) to SPAWAR.

(U) E. SCHEDULE PROFILE:

	FY 2001	FY 2002	FY2003	TO COMPLETE
(U) Program Milestones				MSII (1Q 05) LRIP (4Q 05) MSIII (2Q 06)
(U) Engineering Milestones				Prelim. Design Review (3Q 04) Critical Design Review (3Q 04) Prototype Install (2Q 05)
(U) T&E Milestones				Contract Test/Dev Test (2Q 05) Operational Test (3Q 05)
(U) Contract Milestones				Contract Award (1Q 04) Design, Develop, Integration Prod. Contract Award (2Q 06)

R-1 SHOPPING LIST - Item No. 177

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0101402N Navy Strategic Communications			PROJECT NUMBER AND NAME H3002 Navy Strategic Communications Project							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	C/CPIF	TBD								88.041	88.041	88.041
Primary Hardware Dev. (VLF)	TBD	TBD									0.000	
Subtotal Product Development								0.000		88.041	88.041	88.041
Remarks:												
Subtotal Support												
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2) | DATE: **February 2002**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-7** | PROGRAM ELEMENT: 0101402N Navy Strategic Communications | PROJECT NUMBER AND NAME: H3002 Navy Strategic Communications Project

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Subtotal T&E												
Remarks:												
Government Engineering Support	WX	NAWCAD PAX RIVER, MD				2.093	02/02	9.234	10/02	13.864	25.191	
Engineering Technical Services	TBD	TBD				1.849	02/02	8.745	10/02	17.566	28.160	28.160
Travel						0.100	Various	0.574	10/02	2.511	3.185	
SBIR Assessment						0.126					0.126	
Subtotal Management						4.168		18.553		33.941	56.662	
Remarks:												
Total Cost						4.168		18.553		121.982	144.703	
Remarks:												

R-1 SHOPPING LIST - Item No. 177

EXHIBIT R-2, RDT&E Budget Item Justification								DATE: February 2002			
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7**						R-1 ITEM NOMENCLATURE 0204136N F/A-18 SQUADRONS					
COST ($ in Millions)	Prior Years Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost	**8,814.228**		**221.267**	**251.772**	**204.466**	**148.180**	**113.300**	**52.430**	**11.421**	**0.000**	**9,817.064**
E1662 F/A-18 Improvements	**2,968.764** *		**110.253**	**140.401**	**97.416**	**73.626**	**45.771**	**15.126**	**11.002**	**0.000**	**3,462.359**
E2065 F/A-18 RADAR Upgrade	**302.768** **		**97.122**	**110.235**	**107.050**	**74.554**	**67.529**	**37.304**	**0.419**	**0.000**	**796.981**
E2130 F/A-18 Follow-On Variant	**5,542.696**		**13.892**	**1.136**						**0.000**	**5,557.724**
Quantity of RDT&E Articles	**10**										**10**

*FY92 & Prior: $2511.304; FY93-FY95: $55.765; FY96-FY99: $232.556; FY00 reflects a $5.000M Congressional add for Radar ECCM Improvements, executed under E2803, which has been decreased by $.028M for a Congressional Rescission and $.061M for a SBIR Assessment.
**FY 1991 through FY 1999 = $272.228. Adding RUG Phase I and RUG Phase II

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The F/A-18 is capable of using external equipment to perform either fighter or attack missions. The capabilities of the F/A-18 weapon system can be upgraded to accommodate and incorporate new or enhanced weapons as well as advances in technology to respond effectively to emerging future threats. Continued development capability is required to successfully optimize new F/A-18 weapon system capabilities in the Fleet. Additionally, continued improvements in reliability and maintainability are necessary to ensure maximum benefit is achieved through reduced cost of ownership and to provide enhanced availability.

F/A-18 Improvements: The F/A-18 Naval Strike Fighter program transitioned from full-scale engineering development to operational systems development during FY 1983. As F/A-18 squadrons report discrepancies and new requirements, a continuing capability is needed to perform technical evaluations, investigative flight testing, software support, and incorporate Pre-Planned Product Improvements (P3I) (i.e., capability enhancements).

F/A-18 Radar Upgrade: The F/A-18 Radar Upgrade, Active Electronically Scanned Array (AESA) development program, beginning in FY 1999, is the last of three pre-planned upgrades to the F/A-18 Type/Model/Series radar. The AESA corrects operational test deficiencies noted in the AN/APG-73. It provides for multi-target tracking, Synthetic Aperture Radar (SAR) imagery, SAR Target Location Error (TLE), and improved spotlight map resolution. In addition, it provides for greater lethality than previous F/A-18 radars by allowing for full tactical support of existing and planned air-to-air (A/A) and air-to-ground (A/G) weapons significantly increases A/A and A/G detection and tracking ranges. The AESA provides greater survivability through self-protection and standoff jamming capabilities, while its greater range allows for reduced detection by enemy radar. The AESA is also more affordable than previous radars. Significant savings in operating and support costs can be realized through a five fold increase in reliability over the AN/APG-73 as well as incorporating open architecture and Higher Order Language software. Additionally, savings can be realized by avoiding parts obsolescence redesign costs that will be experienced on the AN/APG-65 and AN/APG-73.

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7**	R-1 ITEM NOMENCLATURE 0204136N F/A-18 SQUADRONS

F/A-18 Follow-On Variant: The follow-on F/A-18 (E/F version) is an airframe upgrade incorporating increased capabilities, performance, and survivability necessary to satisfy the 41% percent increase in range over the C/D in the high-low-low-high attack/interdiction mission carrying three 480 gallon drop tanks, four 1,000 pound bombs, and two AIM-9 air-to-air missiles. The E/F version has increased internal fuel capacity, increased weapons carriage capability, increased carrier recovery payload, enhanced survivability/vulnerability, increased growth capacity, and increased engine thrust. It retains all of the P3I enhancements developed for the earlier night attack C/D version of the aircraft.

(U) **JUSTIFICATION FOR BUDGET ACTIVITY:** This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing operational systems.

R-1 SHOPPING LIST - Item No. 178

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204136N/F/A-18 SQUADRONS					PROJECT NUMBER AND NAME E1662 F/A-18 IMPROVEMENTS					
COST ($ in Millions)	Prior Years Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**2,968.764**		**110.253**	**140.401**	**97.416**	**73.626**	**45.771**	**15.126**	**11.002**	**0.000**	**3,462.359**
Quantity of RDT&E Articles **Not Applicable**											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The F/A-18 is a multi-mission strike fighter aircraft that is used in both fighter and attack roles through selected use of external equipment (fuel tanks, targeting/navigation, Forward Looking Infrared (FLIR) pods, and various bomb/missile launching racks). In order to respond effectively to emerging future threats, F/A-18 aircraft capabilities are being upgraded to incorporate new/enhanced weapons systems and avionics including the Positive Identification System (PIDS) (incorporates Congressionally mandated Combined Interrogator Transponder (CIT) Identification Friend or Foe (IFF) System, Digital Communications System (DCS), Joint Helmet Mounted Cueing System (JHMCS), Advanced Targeting Forward Looking Infrared (ATFLIR), development and integration of the Multifunctional Information Distributions System (MIDS), conversion of the System Configuration Set (SCS) to a Higher Order Language (HOL), development of the F/A-18 E/F Advanced Crew Station (ACS), and upgrade of the existing Global Positioning System/Inertial Navigation System in order to meet precision strike/precision approach requirements. Continued hardware/software development is required to successfully optimize fleet F/A-18 weapons systems. As F/A-18 Squadrons report system problems/requirements, a continuing capability is needed to perform technical evaluations/investigative flight testing, provide software support and integrate selected improvements

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204136N/ F/A-18 SQUADRONS	PROJECT NUMBER AND NAME E1662 F/A-18 IMPROVEMENTS

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2001 ACCOMPLISHMENTS:

* (U) ($1.766) Continued to conduct engineering analysis and develop improvements to existing systems and subsystems for deficiencies identified during development of the aircraft. Provided technical support for the integration of new weapons and systems.

* (U) ($7.453) Continued to develop and integrate enhancements to the effectiveness, operability, and safety of the F/A-18 Weapon System (airframe, avionics, and weapons) and subsystems to include MIDS, AIM-9X, and TAMMAC. Continued to investigate deficiencies and develop corrective action.

* (U) ($9.315) Completed development of DCS and PIDS. Continued development of JHMCS.

* (U) ($27.663) Continued ATFLIR development, DT-IIA and DT-IIB. Commenced DT-IIC testing.

* (U) ($64.056) Continued software conversion from assembly language SCS to a Higher Order Language for load H1E. Continued development of Advanced Crew Station (ACS). Operational Assessment (OA) testing is planned to commence upon completion of DT testing.

2. FY 2002 PLANS:

* (U) ($1.487) Continue to conduct engineering analysis and develop improvements to existing systems and subsystems for deficiencies identified during development of the aircraft. Provide technical support for the integration of new weapons and systems.

* (U) ($11.059) Continue to develop and integrate enhancements to the effectiveness, operability, and safety of the F/A-18 Weapon System (airframe, avionics, and weapons) and subsystems to include MIDS, and completion of AIM-9X and TAMMAC development. Continue to investigate deficiencies and develop corrective action.

* (U) ($.398) Continue development of JHMCS.

* (U) ($42.262) Continue ATFLIR development, DT-IIE testing and commence TECHEVAL and Operational Test Readiness Review (OTRR) testing.

* (U) ($81.098) Continue software conversion from assembly language SCS to a Higher Order Language for load H1E. Commence HOL software development load H2E. Continue ACS development.

*(U)($4.097) Portion of extramural program reserved for Small Business Innovative Research assessment in accordance with 15 USC 638.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204136N F/A-18 SQUADRONS	E1662 F/A-18 IMPROVEMENTS

3. FY 2003 PLANS:

* (U) ($1.185) Continue to conduct engineering analysis and develop improvements to existing systems and subsystems for deficiencies identified during development of the aircraft. Provide technical support for the integration of new weapons and systems.

* (U) ($21.216) Continue to develop and integrate enhancements to the effectiveness, operability, and safety of the F/A-18 Weapon System (airframe, avionics, and weapons) and subsystem to include MIDS and Accurate Navigation (ANAV).

* (U) ($13.677) Complete ATFLIR development, DT-IIE testing and commence OPEVAL.

* (U) ($37.108) Continue software conversion from assembly language SCS to a Higher Order Language for load H1E. Commence HOL software development load H2E. Continue ACS development.

*(U) ($24.230) Continue development of JHMCS.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204136N F/A-18 SQUADRONS	E1662 F/A-18 IMPROVEMENTS

(U) B. PROGRAM CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	114.155	136.556	
(U) Adjustments from the FY2002 President's Budget:	-3.902	3.845	
(U) FY 2003 President's Budget:	110.253	140.401	97.416

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2001 net decrease of $3.902 million is due to decrease of $2.580 million for a Small Business Innovative Research Assessment, a decrease of $.018 million for Federal Technology Transfer, and a decrease $5.723 million for reprioritization of requirements with in the Navy offset by an increase of $4.419 million for SLAP. The FY 2002 net increase of $3.845 million is due to an increase of $5.097 million for AMC&D offset by a decrease of $1.252 million for an undistributed congressional reduction.
(U) Schedule: Not applicable.

(U) Technical: Not applicable

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete
APN-1 (E/F)	2837.83	3118.268	3159.492	2997.234	2954.345	3519.538	3935.753	TBD
APN-5	271.051	223.724	421.704	426.281	500.276	461.816	500.941	TBD

Related RDT&E
(U) P.E. 0207163N Advanced Medium Range Air-to-Air Missile (AMRAAM)
(U) P.E. 0604727N Joint Stand-off Weapon (JSOW) System
(U) P.E. 0604270N EW Development
(U) P.E. 0604777N Navigation ID System, project X0921, NAVSTAR GPS equipment
(U) P.E. 0404215N Standards Development
(U) P.E. 0204136N Radar Upgrade (AESA)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204136N/ F/A-18 SQUADRONS	E1662 F/A-18 IMPROVEMENTS

(U) D. ACQUISITION STRATEGY: The F/A-18 Improvements program consists of extensive development projects and integration of avionics systems onto the F/A-18E/F that were initially developed for incorporation onto the F/A-18C/D as the lead platform.

The major programs within the F/A-18 Improvements Line are as follows:

*PIDS. PIDS is a sole source cost plus fixed fee contract on an R&D Basic Ordering Agreement. Will be bought as CFE through the prime contractor.

*ANAV. ANAV is a sole source cost plus fixed fee contract on an R&D Basic Ordering Agreement. Will be bought as CFE through the prime contractor

*ATFLIR. The ATFLIR development was a sole source incentive fee contract to Boeing. Boeing competed the development contract. The procurement supplier is sole source to Boeing.

* Higher Order Language (HOL). The conversion of the System Configuration Set software to HOL will be accomplished by the F/A-18 Advanced Weapons Laboratory at China Lake as the designated Software Support Activity for the F/A-18. The design of the software will be accomplished by Boeing under sole source contracts. The contract vehicle is a Technical Direction Letter contract at China Lake. As the Prime contractor for the aircraft, Boeing is the design agent for software of aircraft in production.

* Advanced Crew Station. The design and development of the Advanced Crew Station modification is sole source to Boeing as the Prime aircraft contractor.

* DCS. DCS is a sole source cost plus fixed fee contract on an R&D Basic Ordering Agreement. Equipment is GFE.

* MIDS. An acquisition developmental effort supported by SPAWAR (PMW-159), MIDS is being developed by a consortium of international companies.

* JHMCS. JHMCS is a sole source award fee Joint Air Force contract to Boeing.

(U) E. SCHEDULE PROFILE: See following pages.

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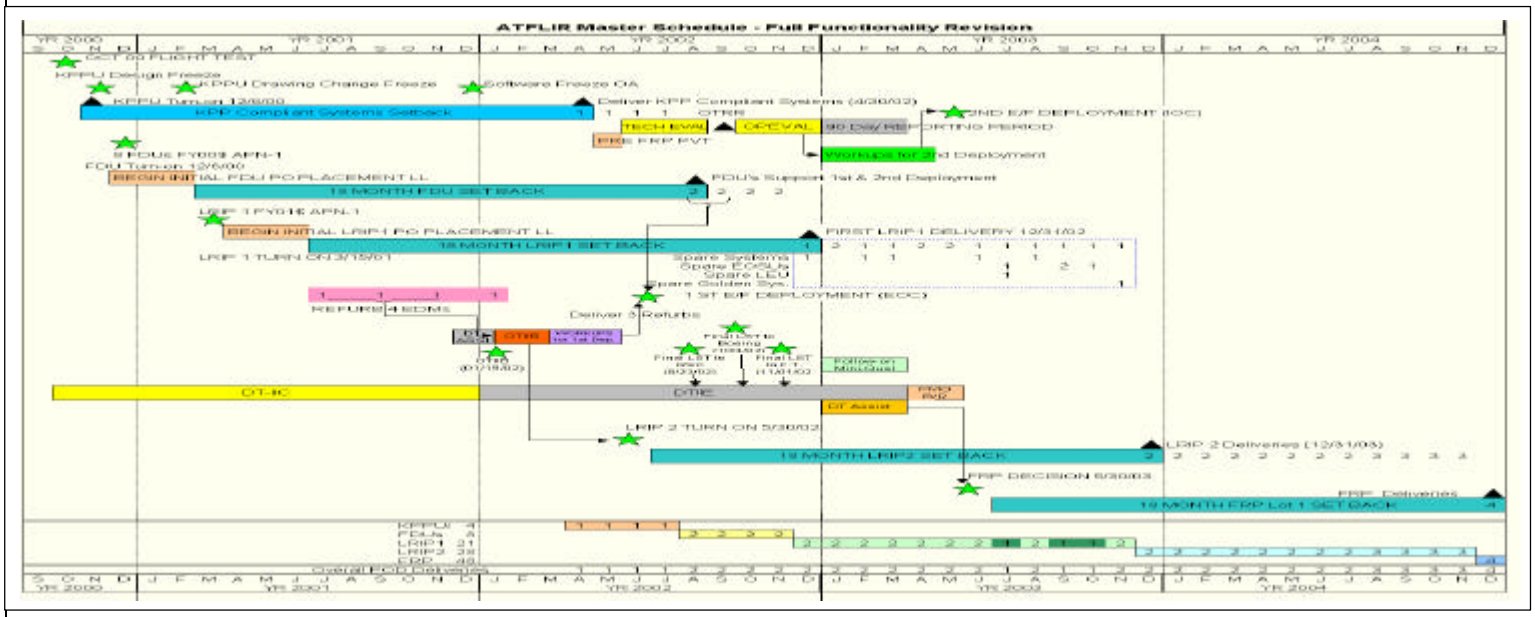
CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204136N F/A-18 Squadrons	E1662 F/A-18 Improvements



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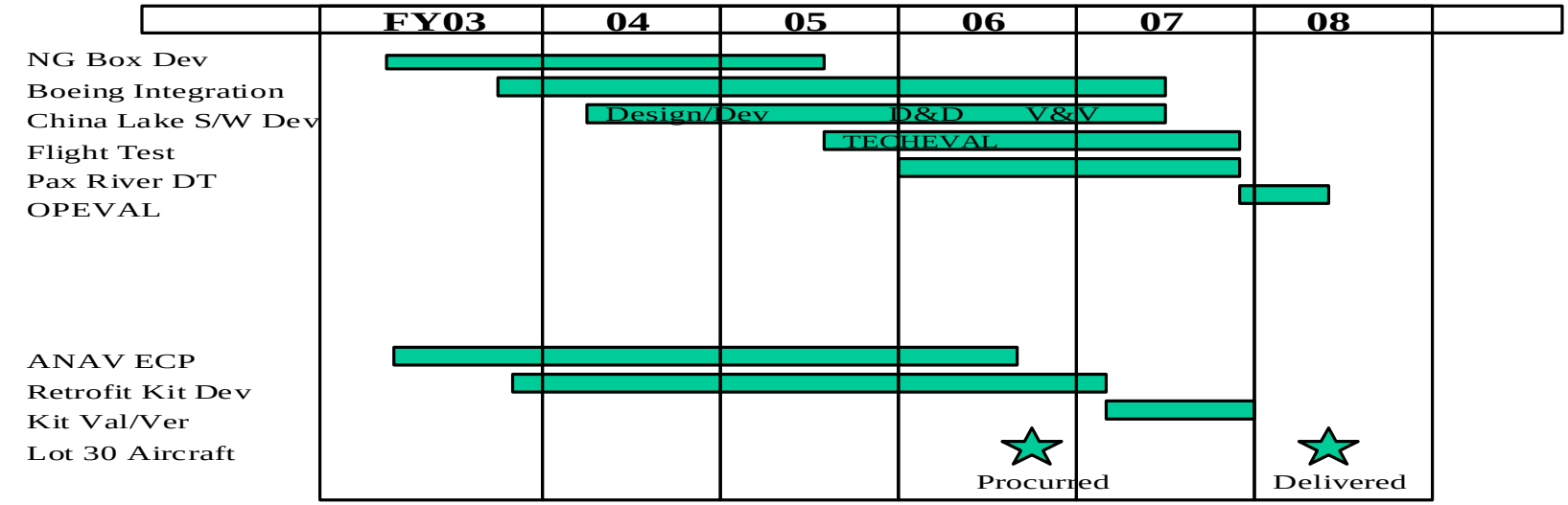
CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2002
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204136N F/A-18 Squadrons	PROJECT NUMBER AND NAME E1662 F/A-18 Improvements	

PEO(T), F/A-18 IPT

F/A-18 E/F ANAV SCHEDULE

TEAM HORNET



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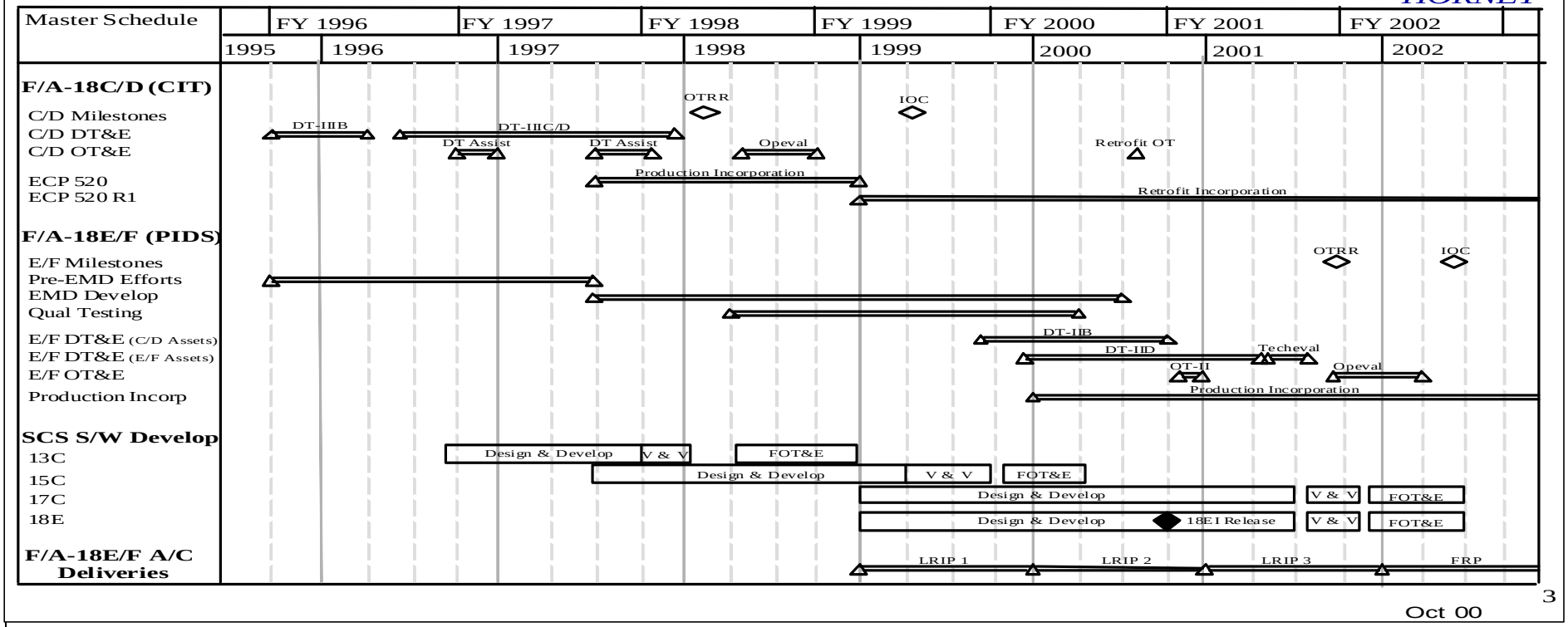
CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204136N F/A-18 Squadrons	PROJECT NUMBER AND NAME E1662 F/A-18 Improvements

PEO(T), F/A-18 IPT

PIDS MASTER SCHEDULE

TEAM HORNET



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CLASSIFICATION:

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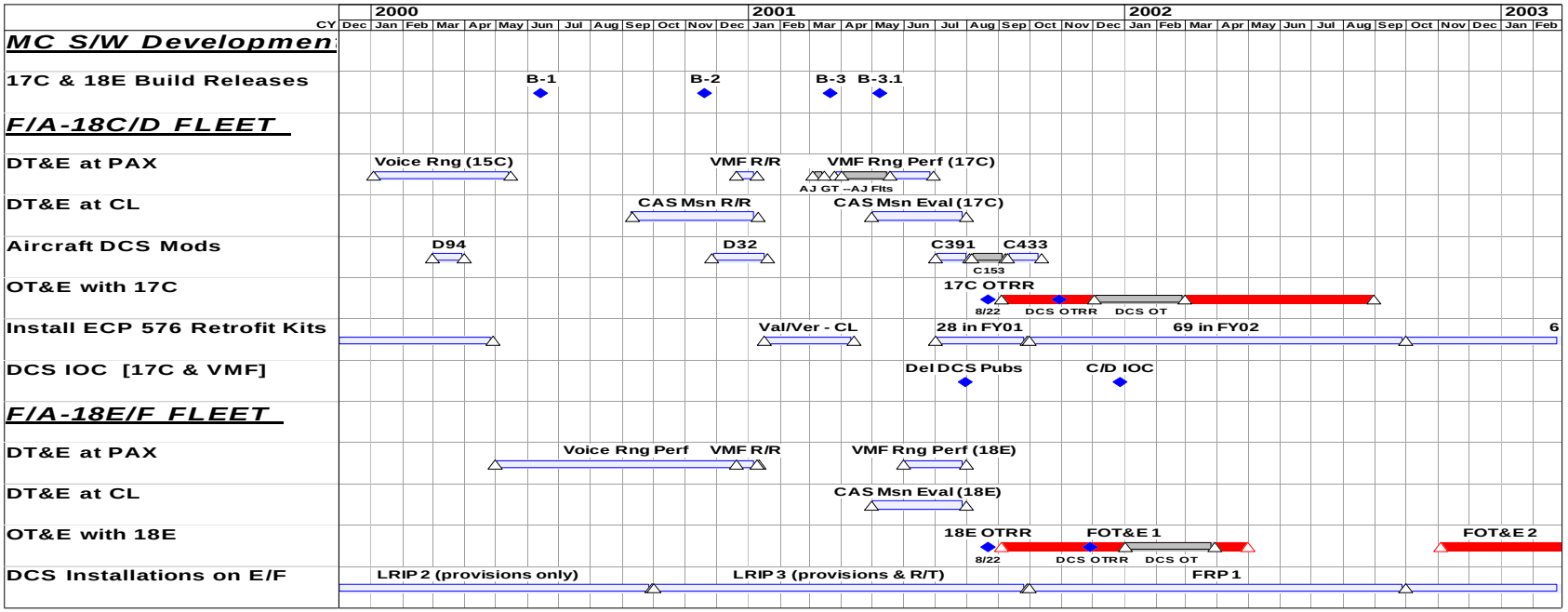
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204136N F/A-18 Squadrons	PROJECT NUMBER AND NAME E1662 F/A-18 Improvements

PEO(T), F/A-18 IPT

DCS MASTER SCHEDULE

TEAM HORNET



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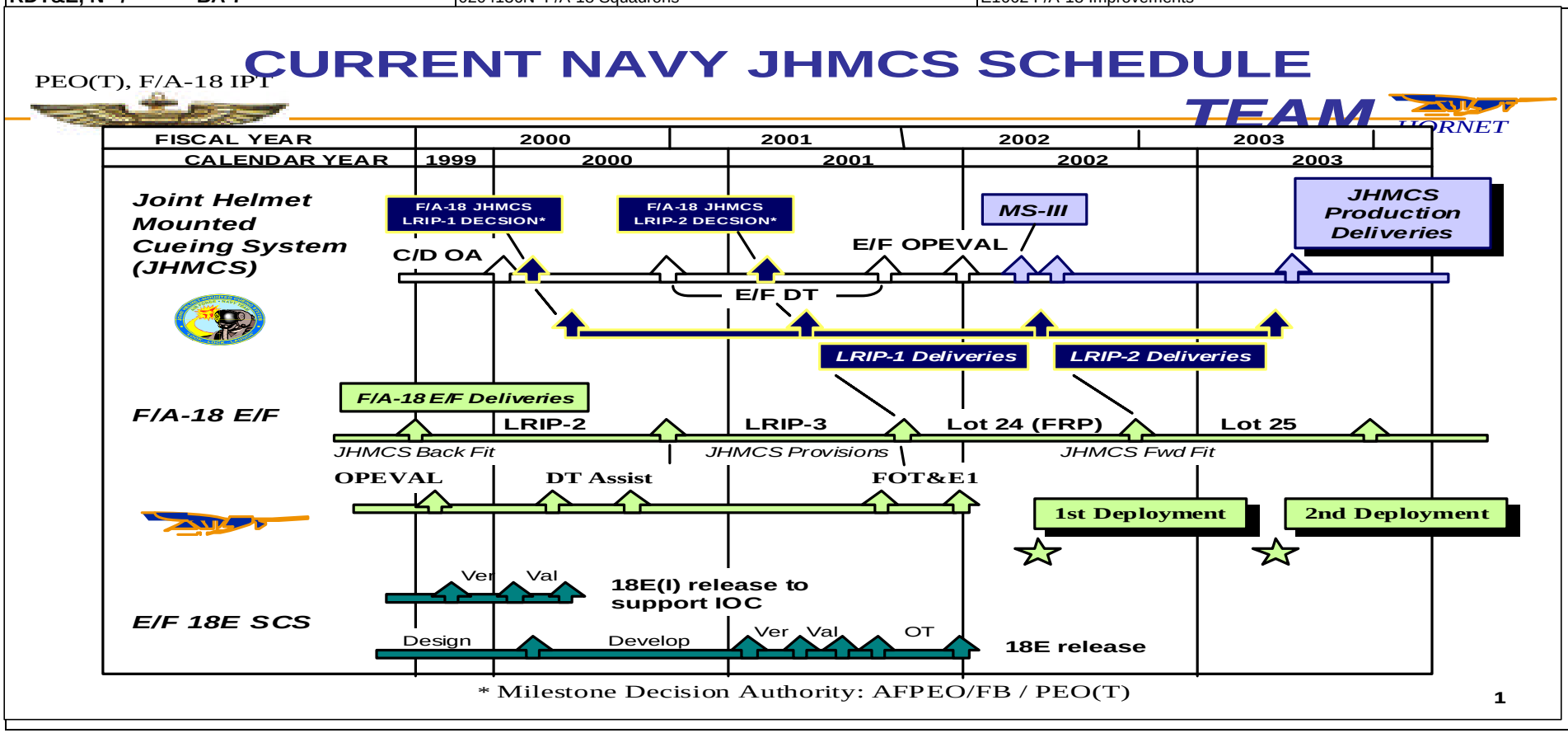
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204136N F/A-18 Squadrons	PROJECT NUMBER AND NAME E1662 F/A-18 Improvements



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CLASSIFICATION:

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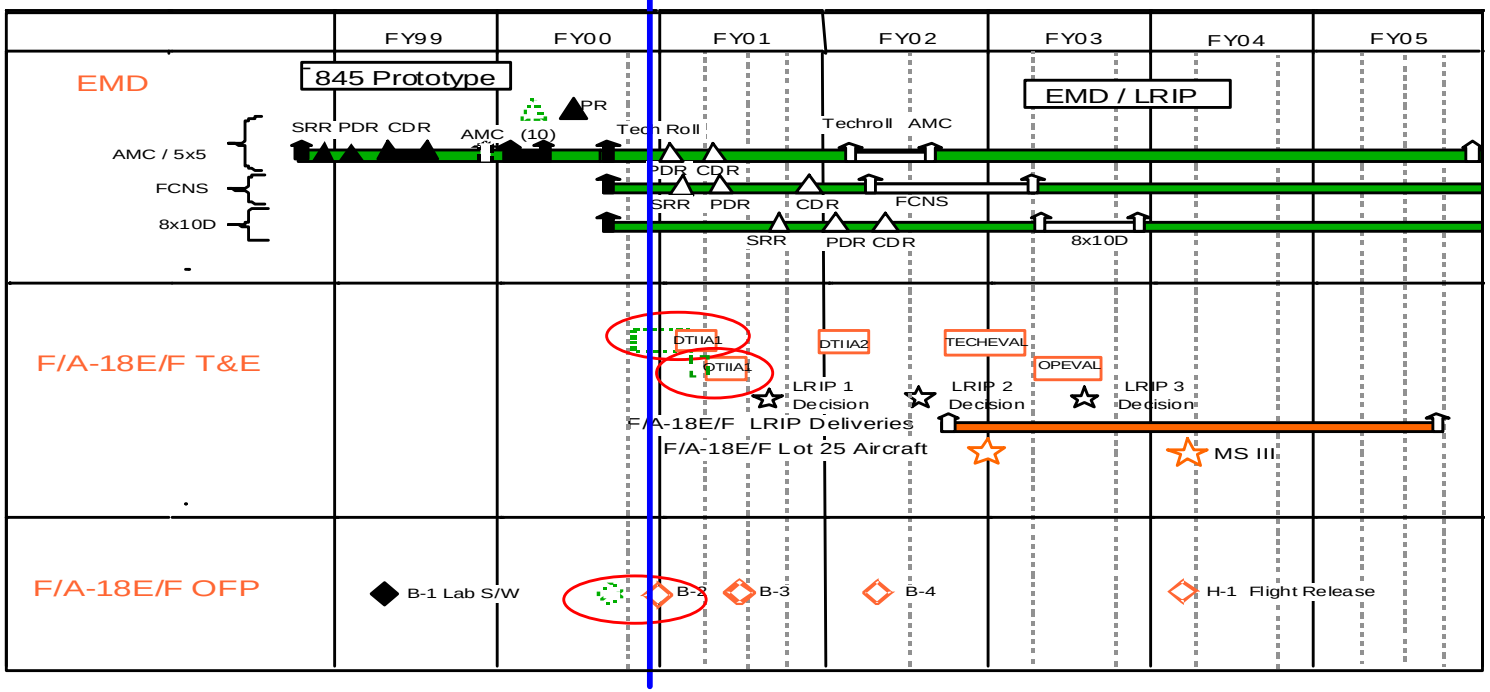
PEO(T), F/A-18 IPT

F/A-18E/F AMC&D / HOL Integrated Master Schedule

TEAM HORNET



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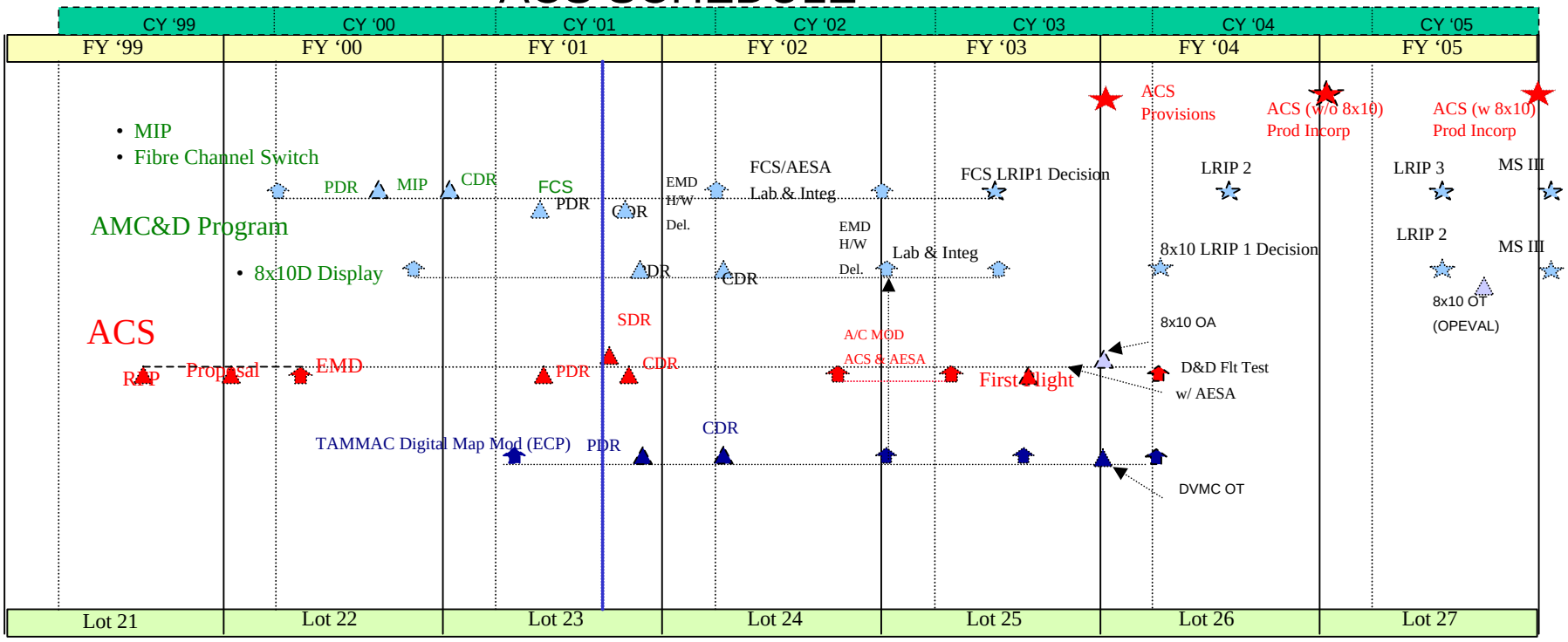
CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204136N F/A-18 Squadrons	PROJECT NUMBER AND NAME E1662 F/A-18 Improvements

ACS SCHEDULE



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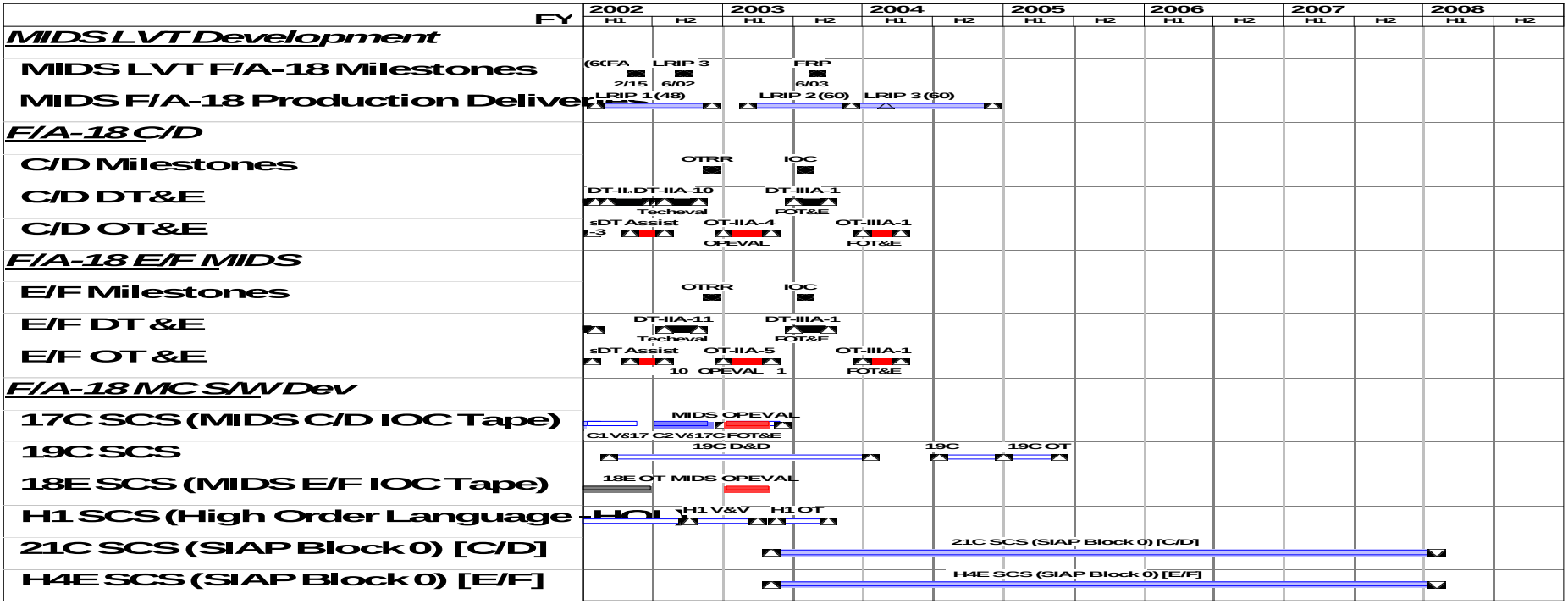
CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204136N F/A-18 Squadrons	PROJECT NUMBER AND NAME E1662 F/A-18 Improvements

MIDS SIAP BLOCK 0



CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204136N F/A-18 Squadrons	PROJECT NUMBER AND NAME E1662 F/A-18 Improvements

AIM-9X Integrated Program Schedule

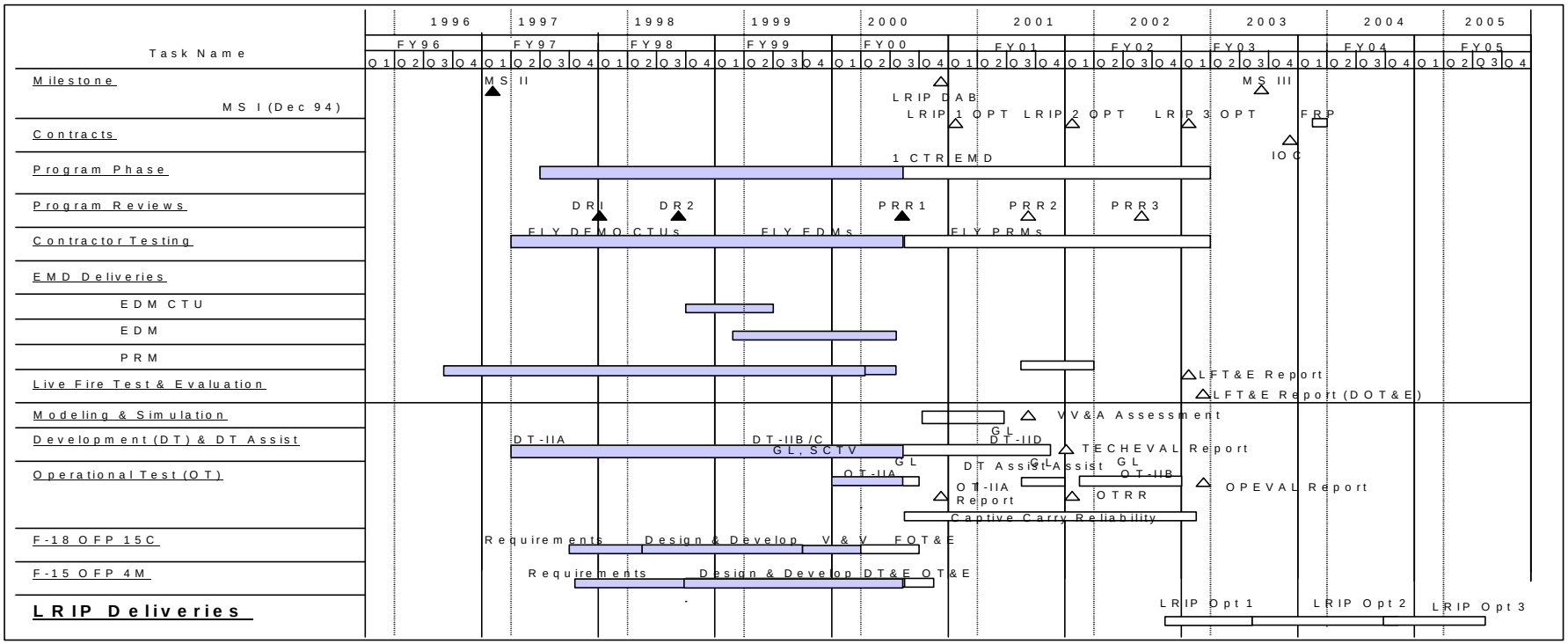


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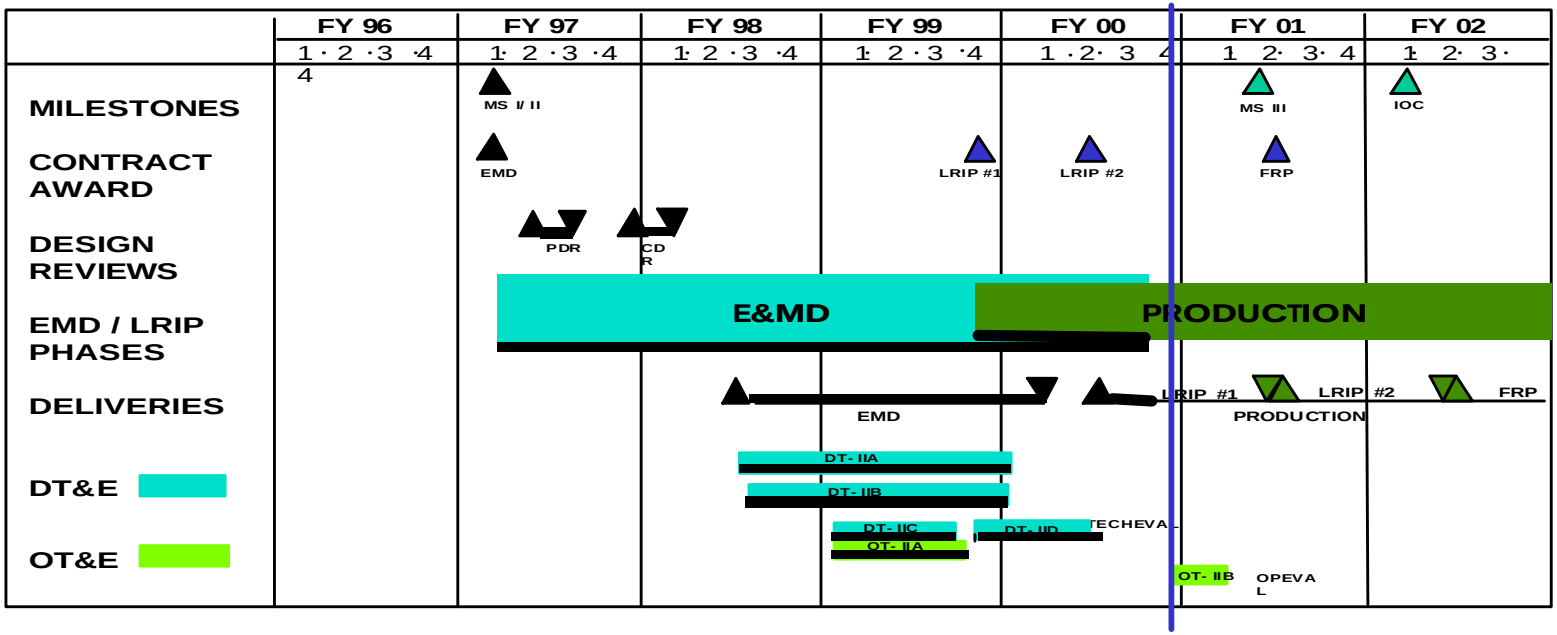
EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2002
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204136N F/A-18 Squadrons	PROJECT NUMBER AND NAME E1662 F/A-18 Improvements	

PEO(T), F/A-18 IPT

TAMMAC Schedule

TEAM HORNET



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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1) — DATE: **February 2002**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-7**

PROGRAM ELEMENT: 0204136N F/A-18 SQUADRONS

PROJECT NUMBER AND NAME: E1662 F/A-18 IMPROVEMENTS

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
PIDS/DCS Development/integration	SS/CPFF/FFP	MDA-ST LOUIS,MO	70.245	3.589	01/01						73.834	73.834
DCS E&MD	SS/FFP	Rockwell-Collins C.Rapids, IA	16.196								16.196	16.196
ATFLIR E&MD (Basic Contract) note 1	SS/CPIF/AF	MDA-ST LOUIS,MO	39.949								39.949	39.949
ATFLIR AWARD FEE (note 1)			0.803								0.803	0.803
ATFLIR EMD (OPTION CONTRACT)	SS/CPIF/AF	MDA-ST LOUIS, MO	62.703	19.000	10/00	33.348	11/01	8.585	11/02		123.636	123.636
ATFLIR AWARD FEE (note 1)			0.773								0.773	0.773
ATFLIR SUPPORT EQUIPMENT	WX	NAWCAD-LAKEHURST NJ	9.003	0.200	11/00						9.203	
ADVANCED CREW STATION	SS/CPIF	MDA-ST LOUIS, MO	4.081	15.946	11/00	16.976	11/01	10.088	11/02	10.204	57.295	57.295
HOL CONVERSION	TDL	NAWCWD-CHINA LAKE	38.085	30.127	11/00	31.395	11/01	5.660	11/02	2.270	107.537	107.537
HOL CONVERSION	SS/CPIF	NAWCWD-CHINA LAKE	13.802	2.229	11/00	2.200	11/01	0.366	11/02	1.340	19.937	19.937
ANAV	SS/CPFF	Northrop-Grumman-LA CA						5.770	11/02	1.120	6.890	6.890
JHMCS E&MD	MIPR	WPAFB DAYTON, OHIO	13.876	2.706	11/00			19.940	11/02	34.034	70.556	70.556
MISCELLANEOUS DEVELOPMENT	VARIOUS	VARIOUS	20.929	0.240	10/00	10.610	11/01	10.391	11/02	13.877	56.047	
SOFTWARE DEVELOPMENT	WX	NAWCWD-CHINA LAKE	63.241	21.676	10/00	21.737	11/01	13.350	11/02	37.749	157.753	
MISC. PRODUCT DEVELOPMENT	WX	OTHER FIELD ACTIVITIES	2.219	2.989	10/00	10.183	11/01	5.900	11/02	15.924	37.215	
Prior Year Costs (Note 2)	Various	Various	2,567.069								2,567.069	
Subtotal Product Development			2,922.974	98.702		126.449		80.050		116.518	3,344.693	

Remarks: Note 1: FY99 and prior year award fee earned is 74.7% (ATFLIR)
Note 2: Prior year costs (FY95 & prior) not broken out into separate categories.

R-1 SHOPPING LIST - Item No. 178

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA- 7**		PROGRAM ELEMENT 0204136N F/A-18 SQUADRONS				PROJECT NUMBER AND NAME E1662 F/A-18 IMPROVEMENTS						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX	NAWCAD, PAX RIVER, MD	35.499	7.426	11/00	5.105	11/01	9.593	11/02	20.845	78.468	
Operational Test & Evaluation	WX	OPTEVFOR, NORFOLK, VA	1.713	2.062	11/00	2.946	11/01	6.449	11/02	4.500	17.670	
Subtotal T&E			37.212	9.488		8.051		16.042		25.345	96.138	
Remarks:												
CONTRACT SUPP/TRL/MISC	VARIOUS	NAVAIR, PAX RIVER, MD	8.578	2.063	11/00	1.804	11/01	1.324	11/02	3.662	17.431	
SBIR Assessment						4.097					4.097	
Subtotal Management			8.578	2.063		5.901		1.324		3.662	21.528	
Remarks:												
Total Cost			2,968.764	110.253		140.401		97.416		145.525	3,462.359	

R-1 SHOPPING LIST - Item No. 178

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2002			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204136N F/A-18 SQUADRONS					PROJECT NUMBER AND NAME E2065 RADAR UPGRADE					
COST ($ in Millions)	Prior Years Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**302.768**		**97.122**	**110.235**	**107.050**	**74.554**	**67.529**	**37.304**	**0.419**	**0.000**	**796.981**
RDT&E Articles Qty											**0**

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The F/A-18 Radar Upgrade, Active Electronically Scanned Array (AESA) development program began in FY 1999. It is the last of three pre-planned upgrades to the F/A-18 Type/Model/Series radar. The AESA corrects operational test deficiencies noted in the AN/APG-73. It provides for multi-target tracking, SAR imagery, SAR TLE, and improved spotlight map resolution. In addition, it provides for greater lethality than previous F/A-18 radars by allowing for full tactical support of existing and planned air-to-air (A/A) and air-to-ground (A/G) weapons, significantly increasing A/A and A/G detection and tracking ranges. The AESA provides greater survivability through self-protection and standoff jamming capabilities, while its greater range allows for reduced detection by enemy radar. The AESA is also more affordable than previous radars. Significant savings in operation and support costs can be realized through a five fold increase in reliability over the AN/APG-73 as well as incorporating open architecture and Higher Order Language software. Additionally, savings can be realized by avoiding parts obsolescence redesign costs that will be experienced on the AN/APG-65 and AN/APG-73.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2001 ACCOMPLISHMENTS:
   - (U) ($81.150) Commenced System Demonstration. Conducted Critical Design Reviews(CDR's), Integrated Forebody testing, and radar cross-section assessments. Conducted Preliminary Design Review (PDR) and Quarterly Program Review.
   - (U) ($4.511) Pre-System Demonstration component procurement.
   - (U) ($.140) Commenced Applied Physics Laboratory workload.
   - (U) ($3.000) Continued software development and systems integration efforts.
   - (U) ($7.904) Continued radar development/planning and prepared Milestone II decision documentation.
   - (U) ($.417) Continued Integrated Logistics Support efforts.

R-1 SHOPPING LIST - Item No. 178

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204136N F/A-18 SQUADRONS	E2065 RADAR UPGRADE

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

2. FY 2002 PLANS:
- (U) ($88.737) Continue EMD efforts and radar cross-section assessments. Conduct Quarterly Program Review.
- (U) ($5.400) Continue software development and systems integration efforts.
- (U) ($12.995) Continue radar development/planning.
- (U) ($.572) Continue Integrated Logistics Support Efforts.
- (U)($2.531) Portion of extramural program reserved for Small Business Innovative Research assessment in accordance with 15 USC 638.

3. FY 2003 PLANS:
- (U) ($67.677) Continue EMD efforts and radar cross-section assessments. Conduct Quarterly Program Review.
- (U) ($25.489) Continue software development and systems integration efforts.
- (U) ($13.520) Continue radar development/planning.
- (U) ($.364) Continue Integrated Logistics Support Efforts.

R-1 SHOPPING LIST - Item No. 178

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204136N F/A-18 SQUADRONS	E2065 RADAR Upgrade

(U) B. PROGRAM CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	102.987	115.455	
(U) Adjustments from the FY 2002 President's Budget:	-5.865	-5.22	
(U) FY 2003 President's Budget:	97.122	110.235	107.050

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2001 net decrease of $5.865 million consists of a decrease of $3.147 million for reprioritization of requirements with in the Navy and a decrease of $2.718 million for Small Business Innovative research Assessment. The FY 2002 decrease of $5.22 consists of a decrease of $4.237 million for reprioritization of requirements with in the Navy and a decrease of $.983 million for an undistrubuted congressional reduction.

(U) Schedule: Not applicable.

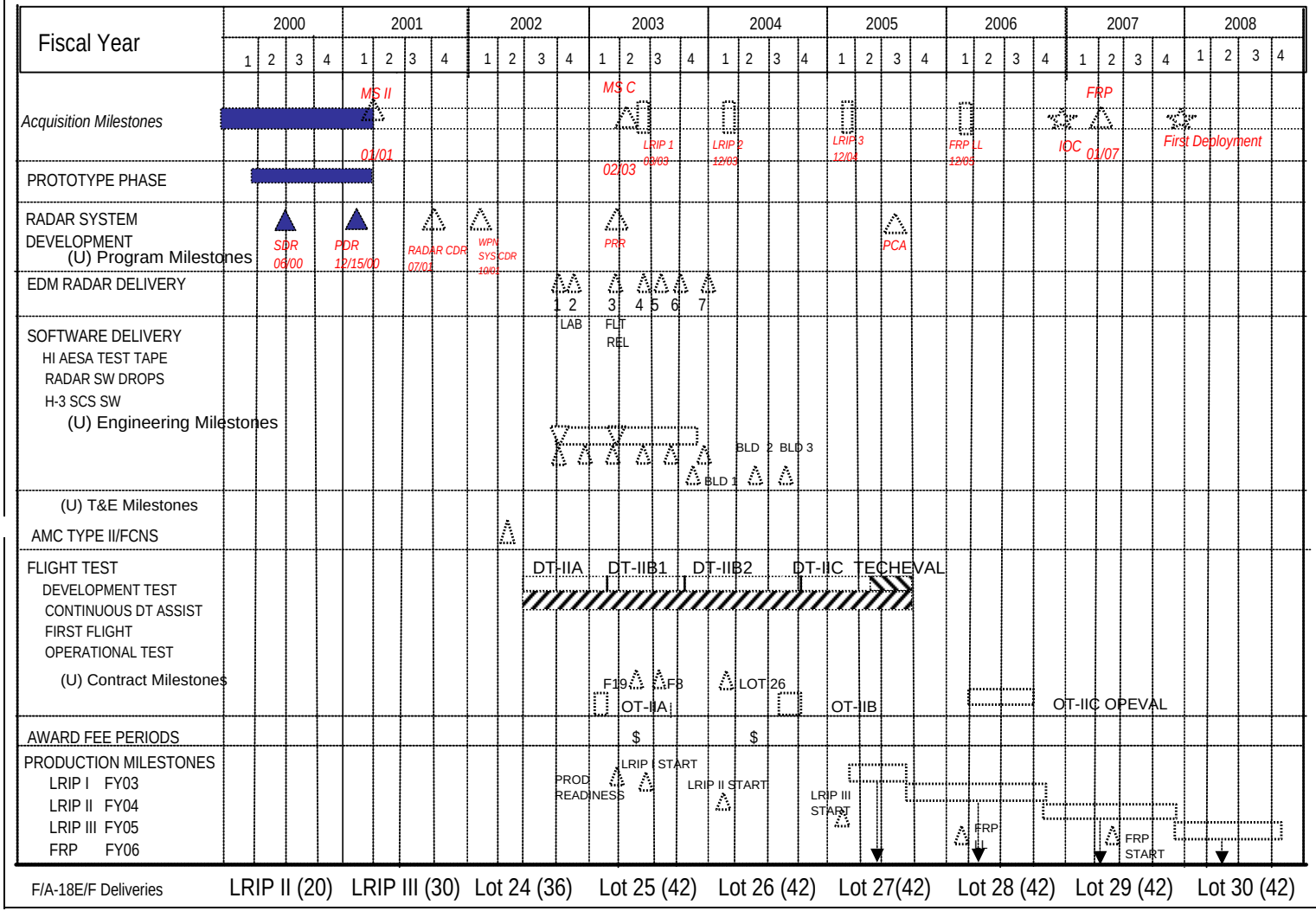
(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete
(2) Line Item 2 E/A APN-1	0	37.3	95.7	106.7	137.2	243.7	291.9	776.34
(1) Line Item 25 APN-5 F-18 (OSIP 38-94)	0	0	0	0	0	0	30.908	280.528

(U) D. ACQUISITION STRATEGY: The AESA program employs a two-phase approach with sole source contracts to Boeing, the airframe prime manufacturer. Phase I is a moderate risk reduction phase conducted in FY 1999 and FY 2000. During this phase, Boeing conducted competitive source selection at the radar system subcontract level. A BOA order for RFP development and subcontractor selection was made to conduct this effort. It includes an “845” agreement for prototype development, which includes commercial development/amortization provisions. Conducting the competition early in the program allowed for focused risk reduction and contractor investment. Phase II will consist of a typical System Demonstration program and development contract. The program transitions to Phase II with a successful Milestone II Decision in FY 2001. Once the program enters production, the “845” agreement allows the contractor to amortize unreimbursed development costs into the production unit cost. This strategy fully utilizes acquisition reform initiatives such as: early partnering with industry; alpha contracting; leveraging industry investment; optimizing use of Commercial Off-the Shelf software and Non-Developmental Item; Cost as an Independent Variable; and Electronic Data Deliverables.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204136N F/A-18 SQUADRONS	E2065 RADAR Upgrade



CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0204136N F/A-18 SQUADRONS			PROJECT NUMBER AND NAME E2065 RADAR Upgrade						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
AESA Radar Contract	SS/CPFF	BOEING. St Louis	4.300	81.150	02/01	88.737	11/01	67.677	11/02	82.627	324.491	324.491
AESA Radar Software Dev/Integratio	WX	NAWCWD, China Lake, CA	0.822	4.500	11/00	5.400	11/01	2.600	11/02		13.322	
AESA Radar Development	WX	NAWCAD, Pax River, MD	0.904	10.291	11/00	9.409	11/01	21.152	11/02	0.200	41.956	
RUG Phase I	SS/LTR(F	BOEING. St Louis	171.000								171.000	171.000
RUG Phase II	CPIF	BOEING. St Louis	51.729								51.729	51.729
RUG Phase II Integration	CPFF	BOEING. St Louis	11.000								11.000	11.000
Subtotal Product Development			239.755	95.941		103.546		91.429		82.827	613.498	
Program execution is based on a pre-coordinated replan effort engineered at Milestone C, which is currently in process.												
AESA Integrated Support	WX	NADEP North Island, CA	0.065	0.108	11/00	0.146	11/01	0.168	11/01	0.346	0.833	
AESA Integrated Support	WX	NAWCAD, Lakehurst, NJ		0.309	11/00	0.425	11/01	0.981	11/01	1.154	2.869	
Subtotal Support			0.065	0.417		0.571		1.149		1.500	3.702	
Remarks:												

R-1 SHOPPING LIST - Item No.178

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0204136N F/A-18 SQUADRONS			PROJECT NUMBER AND NAME E2065 RADAR Upgrade							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
AESA Test & Evaluation	WX	NAWCAD, Pax River, MD				2.800	11/01	3.300	11/02	50.614	56.714	
AESA Test & Evaluation	WX	NAWCWD, China Lake, CA						10.220	11/02	41.996	52.216	
RUG Upgrade Test & Evaluation	WX	NAWCWD, China Lake, CA	52.956								52.956	
RUG Lab Asset	WX	NAWCWD China Lake, CA	7.964								7.964	
Subtotal T&E			60.920			2.800		13.520		92.610	169.850	
Remarks:												
RUG Contractor Sprt/Travel/Misc	Various	NAVAIR Pax River, MD	2.028	0.764	12/00	0.787	12/01	0.952	12/02	2.869	7.400	
SBIR Assessment						2.531					2.531	
Subtotal Management			2.028	0.764		3.318		0.952		2.869	9.931	
Remarks:												
Total Cost			302.768	97.122		110.235		107.050		179.806	796.981	
Remarks:												

R-1 SHOPPING LIST - Item No. 178

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification									DATE: February 2002		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204136N/ F/A-18 Squadrons					PROJECT NUMBER AND NAME E2130/ Follow -On Variant					
COST ($ in Millions)	Prior Years Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**5,542.696**		**13.892**	**1.136**							**5,557.724**
RDT&E Articles Qty	**10**										**10**

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The F/A-18 is a twin-engine, mid-wing multi-mission, tactical aircraft employed Navy and Marine Corps strike fighter squadrons. The F/A-18 through selected use of external equipment is designed for flexibility in fighter, attack, fleet air defense, and close air support roles. The F/A-18E/F variant is an upgrade to the night attack "C" and "D" models. The F/A-18E/F will be the second major upgrade since the program's inception. The F/A-18 continues to adapt its strike fighter role to evolving threats into the next century. The F/A-18E/F E&MD program is under a Congressional mandated cost cap of $4.883B FY90 dollars. Pre-development efforts of $36.6M (in FY90 base year dollars), previously funded under the F/A-18C/D program, is reflected in the RDT&E total, but is not included in the approved $4,883B development cap.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2001 ACCOMPLISHMENTS:

- (U) ($3.228) Continued to develop and integrate mission software.
- (U) ($4.585) Completed integration and testing of avionics subsystems.
- (U) ($4.400) Continued Test Program Set (TPS) development.
- (U) ($1.679) Weapon System Integration Wind Tunnel Testing.

2. FY 2002 PLANS:

- (U) ($ .195) Complete integration and testing of avionics subsystems.
- (U) ($.904) Continue Test Program Set (TPS) development.
- (U)($.037) Portion of extramural program reserved for Small Business Innovative Research assessment in accordance with 15 USC 638.

3. FY 2003 PLANS: Not applicable.

R-1 SHOPPING LIST - Item No. 198

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2002
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204136N/ F/A-18 Squadrons	PROJECT NUMBER AND NAME E2130/ Follow -On Variant

(U) B. PROGRAM CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	17.348	1.246	
(U) Adjustments from the FY 2002 President's Budget:	-3.456	-0.11	
(U) FY 2003 President's Budget:	13.892	1.136	

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY2001 net decrease of $3.456 million consists of a decrease of $3.279 million for reprioritization of requirements within the Navy and a decrease of $.177 million for Small Business Innovative Research Assessment. The FY2002 net decrease of $.11 million consists of a decrease of $.046 million for reprioritization of requirements within the Navy and a decrease of $.064 million for an undistributed congressional reduction .

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete
APN-1	2837.83	3118.268	3159.492	2997.234	2954.345	3519.538	3935.753	TBD
APN-6	111.147	148.231	14.039	115.215	38.644	55.686	41.962	TBD
APN-5	10.648	11.548	48.716	48.442	49.645	19.549	21.363	TBD

Related RDT&E

(U) PE 0207163N (AMRAAM)
(U) PE 0604727N (Joint Standoff Weapon System) (JSOW)
(U) PE 0604270N (EW Development)
(U) PE 0604777N (Navigation/ID System)
(U) PE 0305141D (Joint UAV)
(U) PE 0603261N (Tactical Airborne Reconnaissance)
(U) PE 0204163N (Fleet Communications)
(U) PE 0604215N (Standards Development)

R-1 SHOPPING LIST - Item No. 178

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204136N/ F/A-18 Squadrons	PROJECT NUMBER AND NAME E2130/ Follow -On Variant

(U) D. ACQUISITION STRATEGY: The July 1992 award of the two RDT&E,N contracts to MDA (airframe) and General Electric (engine), both sole source cost plus incentive fee/award fee, effectively initiated the F/A-18E/F E&MD program. The airframe and engine contracts are incrementally funded through FY00 and FY99, respectively. In March 1997, the F/A-18E/F program received approval to enter the Low Rate Initial Production (LRIP) phase. The airframe and engine contracts for this phase are Cost Plus Incentive Fee (CPIF) for LRIP I and Fixed Price Incentive Fee (FPIF) for LRIP II and LRIP III. LRIP III is a priced option to the LRIP II contract. The LRIP II/III contract possesses a common incentive profit structure which affords contractors maximum opportunity to implement quality, reliability, and producibility improvements. Benefits of the F/A-18E/F LRIP contracts include: 1) a measurable profit incentive across the LRIP period of performance; 2) commercial-like long time relationship with contractors which tie customer (fleet) satisfaction to long term profitability; 3) progressive assumption of risk by the contractors; 4) a single negotiation for LRIP II and III.

(U) C. Schedule Profile: Not applicable.

R-1 SHOPPING LIST - Item No. 178

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1) | DATE: **February 2002**

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204136N/ F/A-18 Squadrons	E2130/ Follow -On Variant

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Pre-E&MD Activity	SS/CPFF	MDA, St Louis, MO	81.785								81.785	81.785
Airframe E&MD	SS/CPIF/AF	MDA, St Louis, MO	3,580.379								3,580.379	3,580.379
Airframe E&MD Award Fee (Note 1)			292.939								292.939	292.939
Contrat OPEVAL Support	SS/CPFF/BOA	MDA , St Louis, MO	12.084								12.084	12.084
Pre-E&MD Activity	SS/CPFF	GE Lynn, MA	51.500								51.500	51.500
Engine E&MD	SS/CPFF/AF	GE Lynn, MA	767.655								767.655	767.655
Engine E&MD Award Fee (Note 1)			48.378								48.378	48.378
Radar Integration	SS/CPFF	Hughes California, LA, CA	9.887								9.887	9.887
Miscellaneous Development Efforts	Various	Other	22.144								22.144	
Materials Development	WX	NAWCAD, Warminister, PA	20.302								20.302	
Software Development	WX	NAWCWD, China Lake, CA	59.526	3.228	10/00						62.754	
Support Equipment Development	WX	NAWCAD, Lakehurst, NJ	39.101	3.250	12/00	0.904	10/01				43.255	
Maintenance Support Planning	WX	NADEP, North Island, CA	10.930	1.000	12/00						11.930	
Avionics Support	WX	NAWCAD, Indianapolis, IN	9.502								9.502	
Misc Product Development/GFE	WX	Other Field Activities	151.295	3.031	10/00	0.050	10/01				154.376	
Subtotal Product Development			5,157.407	10.509		0.954					5,168.870	

Remarks:
Note 1: Award Fees included in the total contract value. FY00 and prior year award fee earned is 96.4%

R-1 SHOPPING LIST - Item No. 178

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)											DATE: **February 2002**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT NUMBER AND NAME 0204136N/ F/A-18 Squadrons				PROJECT NUMBER AND NAME E2130/ Follw -On Variant						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Flying Qualities and Performance	MIPR	NASA Langley, AFB	7.306								7.306	
Operational Test & Evaluation	WX	COMOPTEVFOR Norfolk, V	11.008	0.178	10/00						11.186	
Integrated Test Team	WX	NAWCAD, Pax River MD	253.228								253.228	
Wind Tunnel Testing	MIPR	AEDC, TN	44.410	1.501	10/00						45.911	
Misc Test & Evaluation	Various		7.108								7.108	
Subtotal T&E			323.060	1.679							324.739	
Remarks:												
Contractor Support/Misc.	RX	Various	58.908	0.921	11/00						59.829	
Travel	WX	NAVAIR, Maryland	2.972	0.653	10/00	0.145	10/01				3.770	
Transportation	WX	NAVAIR, Maryland	0.349	0.130	10/00	0.037					0.516	
SBIR Assessment												
Subtotal Management			62.229	1.704		0.182					64.115	
Remarks:												
Total Cost			5,542.696	13.892		1.136					5,557.724	
Remarks: There are no Support Costs.												

R-1 SHOPPING LIST - Item No. 178

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification									DATE: February 2002		
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7**						R-1 ITEM NOMENCLATURE 0204152N, E-2 SQUADRONS					
COST ($ in Millions)	Prior Year Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost			**55.694**	**37.247**	**19.011**	**9.321**	**6.480**	**2.500**	**1.820**	**Continuing**	**Continuing**
E0463 - (E-2C Improvements)			*** 34.379**	**6.990**	**7.965**	**9.321**	**6.480**	**2.500**	**1.820**	**Continuing**	**Continuing**
E2321 - (E-2 Radar Modernization)	**79.106**		**** 12.315**	**13.411**	**11.046**						**115.878**
R3007 - (UHF Electronically Scannable Antenna)			**9.000**	**16.846**							
Quantity of RDT&E Articles	**14**										**14**

* The FY2001 budget reflects Congressional Adds for Eight Blade Composite Propeller ($4.000 million), Middleware Technology and Advanced Processing Builds ($5.000 million), Improved Composite Rotordome ($2.000 million), and Network Centric Warfare (NCW) Development, Test and Evaluation in Support of Naval Fires Network Demo ($6.000 million) executed under E2975, E2976, E2979, and E2977 respectively; which have been reduced by $.120, $.210, $.084, and $.153 million for Congressional Undistributed adjustments. FY2001 budget also reflects $8.000 million to incorporate Specific Emitter Identification into ALQ-217.

**$9.000 million of the 15.000 million Congressional add for RMP Littoral Surveillance for the E-2C has been realigned under project R3007 to support UHF Electronically Scannable Antenna.

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:
E-2C Improvements provides pre-planned product improvements for the evolution of E-2C airborne warning system capabilities in support of naval warfare command and control requirements. It has previously funded developments for the modification/replacement of selected weapon replaceable assemblies of current installed subsystems. This has resulted in a new capability configuration referred to as Group II aircraft. The program has developed a Mission Computer Upgrade (MCU), applying on-going developments in data processing and target detection, which will relieve current bottlenecks in signal and processing. The MCU will permit incorporation of additional functional capabilities to satisfy evolving operational requirements, e.g., Cooperative Engagement Capability (CEC), Satellite Communications (SATCOM), and permits the evolutionary growth of a Combat Identification and Cruise Missile Defense (CMD) Capability.

R-1 SHOPPING LIST - Item No. 179

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	R-1 ITEM NOMENCLATURE 0204152N, E-2 SQUADRONS

FY2001-2007: Funding provides for evaluation of technology for new emergent systems and subsystems. This initiative allows for data collection and the evaluation of new technologies in the context of emerging missions and requirements including Cruise Missile Defense, Ballistic Missile Defense, littoral warfare, combat identification including specific emitter identification, multi-source integration, and Single Integrated Air Picture as well as parts and system obsolescence. Emphasis will be upon the following areas: participation in exercises to assess capabilities against emerging threats; identify deficiencies, identification of candidate solutions; and ground/airborne demonstrations of the identified technologies.

The Radar Modernization Program (RMP) is a ground and flight prototype test demonstration and risk mitigation of multiple technologies. It initiates the application of new radar technologies to modernize the primary sensor of the E-2C Weapon system to provide a definitive littoral surveillance capability integral to the Navy's Theater Air Missile Defense (TAMD) Integrated Warfare Architecture. Key technologies to be integrated are space-time adaptive processing (STAP), electronically scanning array (ESA), solid state transmitter, and high dynamic range digital receivers. The resulting detection system will provide a substantially improved overland performance, enhancing all current required mission areas while simultaneously contributing to the emerging TAMD mission requirements. The impact of the dominant battlefield awareness provided by this improved airborne early warning system will substantially contribute to the development of a single integrated air picture. These technologies and resultant equipment demonstrated in ground environment in FY1999 and will be flight tested in FY2001 through FY2003. The P.E. will be utilized for RMP pre-engineering and manufacturing development (Pre-E&MD) FY2001 - FY2002 followed by a phased engineering and manufacturing development (E&MD) for RMP, with phase I Littoral Surveillance beginning in FY2003 followed by phase II pre-planned product improvement (P3 I) which will meet the full Joint Theater Air Missile Defense (JTAMD) mission needs statement requirements.

FY2001 - 2003: Funding provides for evaluation of technology for new emergent systems and subsystems. This initiative allows for data collection and the evaluation of new technologies in the context of emerging missions and requirements including Cruise Missile Defense, Ballistic Missile Defense, littoral warfare, combat identification, multi-source integration, and Single Integrated Air Picture as well as parts and system obsolescence. Emphasis will be upon the following areas: participation in exercises to assess capabilities against emerging threats; identify deficiencies, identification of candidate solutions; and ground/airborne demonstrations of the identified technologies.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing operational systems.

R-1 SHOPPING LIST - Item No. 179

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2002			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204152N, E-2 SQUADRONS					PROJECT NUMBER AND NAME E0463, E-2C IMPROVEMENTS					
COST ($ in Millions)	Prior Year Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost			*** 34.379**	**6.990**	**7.965**	**9.321**	**6.480**	**2.500**	**1.820**	**Continuing**	**Continuing**
RDT&E Articles Qty	**14**										**14**

* The FY2001 budget reflects Congressional Adds for Eight Blade Composite Propeller ($4.000 million), Middleware Technology and Advanced Processing Builds ($5.000 million), Improved Composite Rotordome ($2.000 million), and Network Centric Warfare (NCW) Development, Test and Evaluation in Support of Naval Fires Network Demo ($6.000 million) executed under E2975, E2976, E2979, and E2977 respectively; which have been reduced by $.120, $.210, $.084, and $.153 million for Congressional Undistributed reduction. The FY2001 budget also reflects $8.000 million to incorporate Specific Emitter Identification into ALQ-217.

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:
E-2C Improvements provides pre-planned product improvements for the evolution of E-2C airborne weapon system capabilities in support of naval warfare command and control requirements. It has previously funded developments for the modification/replacement of selected weapon replaceable assemblies of current installed subsystems. This has resulted in a new baseline capability configuration referred to as Group II aircraft. The program has developed a Mission Computer Upgrade (MCU), applying on-going developments in data processing and target detection, which will relieve current bottlenecks in signal and data processing. The MCU will permit incorporation of additional functional capabilities to satisfy evolving operational requirements, e.g., Cooperative Engagement Capability (CEC), Satellite Communications (SATCOM), and permits the evolutionary growth of a Combat Identification and Cruise Missile Defense (CMD) Capability.

Funding provides for evaluation of technologies for new emergent systems and subsystems. This initiative allows for data collection and the evaluation of new technologies in the context of emerging missions and requirements including Cruise Missile Defense, Ballistic Missile Defense, littoral warfare, combat identification including specific emitter identification, multi-source integration, and Single Integrated Air Picture as well as parts and system obsolescence. Emphasis will be upon the following areas: participation in exercises to assess capabilities against emerging threats; identify deficiencies, identification of candidate solutions; and ground/airborne demonstrations of the identified technologies.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204152N, E-2 SQUADRONS	E0463, E-2C IMPROVEMENTS

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2001 ACCOMPLISHMENTS:
   - (U) ($6.133) - Collected Sensor Data. Performed Downselect Infra Red and Multi-source Integration Technologies (MSI). Performed Analysis and Requirements Generation for Future Engineering Change Proposals (ECPs) for E-2C.
   - (U) ($4.790) - Contracted ADA to C++ software conversion of E-2C Functional Configuration Items (FCI) software.
   - (U) ($1.916) - Improved Composite Rotordome (E2979). Analyzed composite radome options for the UHF Electronically Scannable Antennas (UESA) and supported composite UESA radome analysis.
   - (U) ($5.847) - Network Centric Warfare (NCW) Development (E2977). Developed Tactical Dissemination Module, supported Prototype USS CORONADO, installed S-Band Phased Array Antenna, supported Program Development, and supported Limited Objective Experiments and Fleet Battle Experiment India.
   - (U) ($3.880) - Eight Blade Composite Propeller (E2975). Provided Flight and Ground Test for C-2/E-2 aircraft and Integration Support.
   - (U) ($3.813) - Advanced Support Aircraft (ASA) (E2805). Supported the Littoral E-2C aircraft by performing tasks related to the E-2C production and retrofitted to develop a new mission suite centered around RMP.
   - -(U) ($8.000) - Developed and evaluated Specific Emitter Identification capability into the ALQ-217 Electronc Support Measure System to improve E-2C combat identification capabilities.

2. FY 2002 PLANS:
   - (U) ($1.707) - Continue Analysis and Requirements Generation for Future ECPs for E-2C.
   - (U) ($1.877) - Support MSI Phase I Flight Test Evaluation for E-2C.
   - (U) ($1.000) - Develop Advanced Middleware Software for Operational Flight Program Portability for E-2C.
   - (U) ($1.394) - Support Fleet Battle Group Interoperability Testing and Evaluation for E-2C.
   - (U) ($0.400) - Develop E-2C Joint Mission Planning System (JMPS) software.
   - (U) ($0.300) - Develop and evaluate ALQ-217 database.
   - (U) ($0.100) - Provide Tactical Aircraft Mission Planning System (TAMPS) support.
   - (U) ($0.212) - Portion of extramural program for Small Business Innovation Assessment in accordance with 15 USC 638.

3. FY2003 PLANS:
   - (U) ($2.500) - MSI Test and Evaluation in Conjunction with CEC Follow-on Test and Evaluation (FOT&E) for E-2C.
   - (U) ($1.296) - Support Fleet Battle Group Interoperability Testing and Evaluation for the E-2C.
   - (U) ($1.000) - Integrated Processor Architecture Development.
   - (U) ($0.850) - Requirements Analysis for Development of Integrated Communication System Architecture to Support Advanced Sensor Networking.
   - (U) ($0.500) - Avionics System Trade Studies to support NCW Architectures.
   - (U) ($1.036) - Support Organic Sensor/Resource Management.
   - (U) ($0.783) - MSI Development to support Single Integrated Air Picture (SIAP).

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204152N, E-2 SQUADRONS	E0463, E-2C IMPROVEMENTS

(U) B. PROGRAM CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	23.218	7.052	
(U) Adjustments from the FY2002 President's Budget:	11.161	-0.062	
(U) FY 2003 President's Budget Submit:	34.379	6.990	7.965

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2001 net increase of $11.161 million consists of a $3.810 million increase for Advanced Support Aircraft and a $8.000 million increase to incorporate Specific Emitter Identification capability into ALQ-217 offset by a $0.136 million decrease for reprioritization of requirements within the Navy and a $0.513 million decrease for a Small Business Innovation Research assessment. The FY 2002 net decrease of $0.062 million consists of a $0.062 million decrease for an undistributed congressional reduction.

(U) Schedule:

(U) Technical: Not Applicable.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204152N, E-2 SQUADRONS	E0463, E-2C IMPROVEMENTS

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete
APN 1/E-2C (LI #12 &13)	312.375	275.216	295.451	252.860	324.871	421.542	398.906	6776.439
APN 5/E-2C (LI #37)	49.829	48.498	17.195	90.933	9.559	8.740	8.600	1331.900
APN 6/E-2C (LI #51)	21.733	26.733	4.082	13.040	7.313	2.071	5.750	216.927

Related RDT&E
(U) 0603658N (Ship Self Defense, CEC)
(U) 0604234N (E-2C Radar Modernization Program)

(U) D. ACQUISITION STRATEGY: Not Applicable

(U) E. SCHEDULE PROFILE:

	FY 2001	FY 2002	FY 2003	FY 2004	TO COMPLETE
(U) Program Milestones	3Q/01 MCU MSIII Infra Red Search & Track (IRST) Demo Lasar Radar (LADAR) Demo Multi Source/Multi Sensor Integration				HE2000 Fielding
(U) Engineering Milestones		2Q-3Q/02 JSCIET MSI Integration Data Collect			MSI Testing
(U) T&E Milestones	Ground Demo	4Q/02 MSI FQT	1Q/03 FOT&E Fielding		
(U) Contract Milestones	4Q/01 MCU FRP				

R-1 SHOPPING LIST - Item No. 179

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1) | DATE: **February 2002**

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204152N, E2 SQUADRONS	E0463, E-2C IMPROVEMENTS

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Hardware/Software Dev. - MCU	SS/CPIF	NGC, NY/FL	157.460								157.460	157.460
Hardware/Software Dev. - CEC/MCU	SS/CPFF	NGC, NY/FL	12.194								12.194	12.194
Hardware/Software Dev. - MCU	SS/CPFF	NGC, NY/FL	13.998								13.998	13.998
Hardware/Software Dev. Misc. - MCU	SS/CPFF	NGC, NY/FL	1.021								1.021	1.021
Hardware/Software Dev. - Prior Yr Eft		NGC, NY/FL	254.800								254.800	254.800
Hardware/Software Dev	SS/CPFF	NGC, NY/FL				4.683	12/01	5.406	10/02		10.089	10.089
Hardware/Software Dev	SS/CPFF	NGC, NY		4.817	08/01						4.817	4.817
Hardware/Software Dev	PD	NCW, Arlington, VA		5.765	11/00						5.765	5.765
Hardware/Software Modification-ICR	SS/CPFF	NGC, NY		1.766	08/01						1.766	1.766
Hardware/Software - JMPS/TAMPS	C/CPFF	TBD				0.700	02/02				0.700	0.700
Hardware/Software - SEI	SS/CPFF	NGC, NY		7.675	11/00						7.675	7.675
Subtotal Product Development			439.473	20.023		5.383		5.406			470.285	470.285

Remarks:

Government Eng. Spt	WX/RC	NAWCAD, PAX RIVER, MD	13.261								13.261	
Government Eng. Spt - Prior Yr Eft	WX/RC	NAWCAD, PAX RIVER, MD	58.800								58.800	
Government Eng. Spt (AIR 4.2) - MCU	WX/RC	NAWCAD, PAX RIVER, MD	0.397								0.397	
Government Eng. Spt - ASA/UESA	C/CPFF	Classified	5.520	0.141	06/01						5.661	5.661
Government Eng. Spt - ASA	MIPR	NRL, Wash, D.C.	0.600								0.600	
Government Eng. Spt - Improvements	WX/RC	NAWCAD, PAX RIVER, MD				0.904	10/01				0.904	
Government Eng. Spt-JMPS/TAMPS	WX/RC	NAWCAD, PAX RIVER, MD				0.100	10/01				0.100	
Government Eng. Spt	WX/RC	NAWCAD, PAX RIVER, MD		0.350	03/01						0.350	
Government Eng. Spt	WX/WR	NAWCAD, PAX RIVER, MD		0.694	03/01			0.500	10/02		1.194	
Government Eng. Spt	SS/CPFF	NGC, NY		2.301	05/01						2.301	2.301
Government Eng. Spt (RAND)	MIPR	PENTAGON, WASH, D.C.		0.300	08/01						0.300	
Government Eng. Spt	RX/RC	NAWCAD, PAX RIVER, MD		0.369	05/01						0.369	
Government Eng. Spt - SEI	WX/RX	NAWCAD, PAX RIVER, MD		0.325	11/00						0.325	
Subtotal Support			78.578	4.480		1.004		0.500			84.562	

Remarks:

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)

DATE: **February 2002**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-7**

PROGRAM ELEMENT: 0204152N, E2 SQUADRONS

PROJECT NUMBER AND NAME: E0463, E-2C IMPROVEMENTS

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Test & Evaluation - MCU	WX/RC	NAWCAD, PAX RIVER, MD	38.578								38.578	
Test & Evaluation - Prior Yr Effort	WX	NAWCAD, PAX RIVER, MD	39.200								39.200	
ACIS (PMS-440)	PD	NAVSEA	2.483								2.483	
LEAR JET - MCU	PD	PMA-207	0.601								0.601	
Test & Evaluation - MCU	WX	PMRF, HAWAII	1.500								1.500	
Miscellaneous - MCU	MIPR	Various	0.666								0.666	
Test & Evaluation - IMPROV	WX/WR	NAWCAD, PAX RIVER, MD	2.639								2.639	
Test & Evaluation - Contract/Improv.	MIPR		0.325								0.325	
Test & Evaluation - Improvements	WR	NAWCAD, PAX RIVER, MD	0.800	1.351	10/00	0.376	10/01	1.649	10/02	Continuing	Continuing	
Test & Evaluation - EBC Flt Test	WX	NAWCAD, PAX RIVER, MD		1.380	12/00						1.380	
Test & Evaluation - EBC	TBD	Various		2.500	02/01						2.500	
Test & Evaluation	WX/RX	NAWCAD, PAX RIVER, MD		4.600	12/00						4.600	
Subtotal T&E			86.792	9.831		0.376		1.649		Continuing	Continuing	
Remarks:												
Management	WX/RX	NAWCAD, PAX RIVER, MD	0.091					0.330	10/02		0.421	
Travel	WX/WR	NAWCAD, PAX RIVER, MD	0.106	0.045	10/00	0.015	10/01	0.080	10/02	Continuing	Continuing	
SBIR Assessment						0.212					0.212	
Subtotal Management			0.197	0.045		0.227		0.410		Continuing	Continuing	
Remarks:												
Total Cost			605.040	34.379		6.990		7.965		Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST - Item No. 179

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204152N, E-2 SQUADRONS					PROJECT NUMBER AND NAME E2321, RADAR MODERNIZATION PROGRAM					
COST ($ in Millions)	Prior Year Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**79.106**		**12.315***	**13.411**	**11.046**						**115.878**
RDT&E Articles Qty Not Applicable											

* $9.000 million of the $15.000 million Congressional add for RMP LIttoral Survellance for the E-2C was realigned to R3007 for UHF Electronically Scannable Antenna.

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Radar Modernization Program (RMP) is a ground and flight prototype test demonstration and risk mitigation of multiple technologies. It initiates the application of new radar technologies to modernize the primary sensor of the E-2C weapon system to provide a definitive littoral surveillance capability integral to the Navy's Theater Air Missile Defense (TAMD) Integrated Warfare Architecture. Key technologies to be integrated are space-time adaptive processing (STAP), electronically scanning array (ESA), solid state transmitter, and high dynamic range digital receivers. The resulting detection system will provide a substantially improved overland performance, enhancing all current required mission areas while simultaneously contributing to the emerging TAMD mission requirements. The impact of the dominant battlefield awareness provided by this improved airborne early warning system will substantially contribute to the development of a single integrated air picture. These technologies and resultant equipment demonstrated in ground environment in FY1999, will be tested in FY2001 through FY2003. The P.E. will be utilized for RMP pre-engineering and manufacturing development (Pre-E&MD) FY2001 - FY2002 followed by a phased E&MD for RMP, with phase I Littoral Surveillance beginning in FY2003 followed by phase II pre-planned product improvement (P3 I) which will meet the full Joint Theater Air Missile Defense (JTAMD) mission needs statement requirements.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2001 ACCOMPLISHMENTS:

- (U) ($6.855) - Completed the integration and check out (IACO) of NC-130H Test Bed, installed Flight Test Instrumentation, conducted Subsystem Flight Test, performed Elemental Data Analysis/Generate Quicklook Report, and initiated Preliminary Design of NC-130H Littoral Configuration Processing Suite.
- (U) ($5.460) - Radar Modernization Program Plus-Up (E2804). Performed weapon system performance requirements analysis for the E-2C RMP Littoral Surveillance aircraft. Performed engineering effort necessary to build a 21 channel antenna rotray coupler equipment cooling system, fabricated Identify Friend or Foe (IFF) antenna beam forming device, provided analysis, designed, and modified an existing IFF system, conducted IACO and demonstrated an existing IFF system, and conducted co-aligned IFF antenna feasibility analysis.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204152N, E-2 SQUADRONS	E2321, RADAR MODERNIZATION PROGRAM

2. FY 2002 PLANS:

- (U) ($1.710) - Complete Subsystem Flight Test.
- (U) ($0.675) - Complete Elemental Data Analysis/Generate Final Rep.
- (U) ($2.853) - Complete Design of NC-130H Littoral Configuration Processing Suite.
- (U) ($6.774) - Complete Parts/Fabrication of NC-130H Littoral Configuration Processing Suite.
- (U) ($0.993) - Initiate NC-130H integration and check out (IACO) of Processing Suite.
- (U) ($0.406) - Portion of extramural for Small Business Innovation Assessment in accordance with 15 USC 638.

3. FY 2003 PLANS:

- (U) ($7.165) - Complete NC-130H IACO of Processing Suite.
- (U) ($1.646) - Conduct Processing Subsystem Flight Test.
- (U) ($2.235) - Perform Tracking Analysis/Generate Final Report.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204152N, E-2 SQUADRONS	E2321, RADAR MODERNIZATION PROGRAM

(U) B. PROGRAM CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	21.672	13.531	
(U) Adjustments from the FY2002 President's Budget:	-9.357	-0.120	
(U) FY 2003 President's Budget Submit:	12.315	13.411	11.046

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2001 net decrease of $9.357 million consists of a $9.000 million realignment of funds to R3007 for UHF Electronically Scannable Antenna, a $0.689 million decrease for Small Business Innovation Research Assessment, and a $0.054 decrease for repriorization of requirements within the Navy offset by a $0.386 million increase for radar technologies improvements, The FY 2002 decrease of $0.120 million consists of an undistributed congressional reduction.

(U) Schedule: Not Applicable.

(U) Technical: Not Applicable.

(U) C. OTHER PROGRAM FUNDING SUMMARY: Not Applicable

Related RDT&E

(U) 0604234N (E-2C Radar Modernization Program)

(U) D. ACQUISITION STRATEGY: The program is a Non-Acquisition Program governed by a Non-Acquisition Program Definition Document (NAPDD) #501-880C2 dated 16 May 1997 in accordance with SECNAVINST 5000.2B.

(U) E. SCHEDULE PROFILE:	FY 2001	FY 2002	FY 2003	TO COMPLETE
(U) Program Milestones			2Q03 RMP MS-B (Trans to Acquisition Program)	HE2000 Fielding
(U) Engineering Milestones	1Q01 PDR 3Q01 CDR	4Q02 Complete Fab	2Q03 Complete IACO	MSP Testing
(U) T&E Milestones	2Q01 NC-130H Testbed First AV Flight	4Q02 C1 Flight Test	4Q03 C2 Flight Test	

(U) Contract Milestones: All Contracts awarded in FY-1998 at Program Inception.

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)

DATE: **February 2002**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-7**

PROGRAM ELEMENT: 0204152N, E2 SQUADRONS

PROJECT NUMBER AND NAME: E2321, RADAR MODERNIZATION PROGRAM

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Hardware/Software Dev.	SS/CPFF	Classified	53.752	5.065	11/00	6.814	10/01	5.492	10/02		71.123	71.123
Hardware/Software Dev.	SS/CPFF	NGC, NY	15.167	4.800	06/01	4.351	10/01	3.541	10/02		27.859	27.859
Hardware/Software Dev.	MIPR	Hanscomb AFB, MA	0.748								0.748	
Hardware/Software Dev.	BAAs	BAAs	0.406								0.406	0.406
Hardware/Software Dev.	SS/CPFF	Kirkland AFB, TX	0.476								0.476	0.476
Subtotal Product Development			70.549	9.865		11.165		9.033			100.612	

Remarks:

Government Eng. Support	WR/WX	NAWCAD, PAX RIVER, MD	1.837	0.945	12/00	0.881	10/01	0.683	10/02		4.346	
Government Eng. Support	CPFF	Classified	0.865			0.180	10/01	0.180	10/02		1.225	1.225
Government Eng. Support	MIPR	Pentagon, Washington, D,C,		0.400	04/01						0.400	
Government Eng. Support	WX	NSWC		0.025	08/01						0.025	
Subtotal Support			2.702	1.370		1.061		0.863			5.996	

Remarks:

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0204152N, E2 SQUADRONS			PROJECT NUMBER AND NAME E2321, RADAR MODERNIZATION PROGRAM						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Test & Evaluation	WX/WR	NAWCAD, PAX RIVER, MD	3.840	1.080	10/00	0.339	10/01	0.710	10/02		5.969	
Test & Evaluation	C/CPFF	Classified	0.895			0.360	10/01	0.360	10/02		1.615	1.615
Lear Jet - RMP	PD	PMA-207	0.380								0.380	
Gear Boxes	PD	AIR-5.0	0.550								0.550	
Test & Evaluation	PD	PMS-465										
Subtotal T&E			5.665	1.080		0.699		1.070			8.514	
Remarks:												
Management	C/CPFF	Classified	0.105			0.060	10/01	0.060	10/02		0.225	0.225
Travel	WX	NAWCAD, PAX RIVER, MD	0.085			0.020	10/01	0.020	10/02		0.125	
SBIR Assessment						0.406					0.406	
Subtotal Management			0.190			0.486		0.080			0.756	
Remarks:												
Total Cost			79.106	12.315		13.411		11.046			115.878	
Remarks:												

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204152N, E-2 SQUADRONS					PROJECT NUMBER AND NAME R3007, UHF ELECTRONICALLY SCANNABLE ANTENNA					
COST ($ in Millions)	Prior Year Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost			*** 9.000**	**16.846**							**25.846**
RDT&E Articles Qty											

* FY 2001 budget reflects a $9.000 million realignment from the $15.000 million Congressional add for RMP Littoral Surveillance for the E-2C program to support the UHF Electronically Scannable Antenna.

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:
UHF Electronically Scannable Antenna: Develop, demonstrate, and analyze UESA radar testbed concept on the Mountaintop on Kauai. FY01 effort includes integrating UESA Antenna developed by Randtron, SiC Transmitter developed by Northrop Grumman, ESSS, Direct Digital Synthesis Exciter by EWA, Console and External Communications by Solipsys, and T/R Switch by University of Hawaii and Research Corporation of University of Hawaii, Phaseshifter by Trex Industries. NGC ESSS is the system integrator for the MT Testbed. This effort initially will demonstrate a non-real time Surveillance radar operation, and a real time system by Jan 04.

FY02 effort will include an integrated IFF system as well as advanced digital receivers and supercombiner circuits. Additional contractors are TBD based on a competitive procurement. Comprehensive real time demonstration is planned for integrated Surveillance and IFF capability by March of FY04. Extensive work will be done with PMRF for the use of their range, and targets to conduct the full UESA RTB capability demonstration to assess UESA's ability to meet the Littoral Surveillance needs.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204152N, E-2 SQUADRONS	R3007, UHF ELECTRONICALLY SCANNABLE ANTENNA

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2001 ACCOMPLISHMENTS:
   - (U) ($6.000) - Supported NGC ESSS System Integration Contract
   - (U) ($1.000) - Supported Oceanit Power Monitoring System
   - (U) ($1.000) - Supported University of Hawaii T/R Switch
   - (U) ($1.000) - Supported NAVAIR/PMRF Systems Engineering and Demonstration Plans

2. FY 2002 PLANS:
   - (U) ($2.000M) - NGC ESSS Complete Systems Integration for Real Time system
   - (U) ($6.000M) - NGC ESSS Complete System integration with IFF system
   - (U) ($2.000M) - NAVAIR/PMRF Range Costs and Systems Engineering
   - (U) ($4.000M) - RCUH/University of Hawaii Continuation of Phaseshifter, advanced transmitter, Digital Receivers, Systems Engineering
   - (U) ($2.846) - UESA RTB System Support. Various contractors and teams - IDPC system for moving clutter, chiller, antenna install with system, Radar install

3. FY2003 PLANS: Not Applicable

R-1 SHOPPING LIST - Item No. 179

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204152N, E-2 SQUADRONS	R3007, UHF ELECTRONICALLY SCANNABLE ANTENNA

(U) B. PROGRAM CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:			
(U) Adjustments from the FY2002 President's Budget:	9.000	16.846	
(U) FY 2003 President's Budget Submit:	9.000	16.846	

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2001 net increase of $9.000 million consists of a $9.000 million increase for UHF Electronically Scannable Antenna.
The FY 2002 net increase of $16.846 million consists of a $17.000 million increase for UHF Electronically Scannable Antenna offset by a $0.154 million decrease for an undistributed Congressional reduction.

(U) Schedule: All Associated contracts to be awarded by May of FY02.
Sub-system delivery NGC ESSS: Sept of FY02
System integration at NGC ESSS: Jan of FY03
Non-Real Time System on MT on Kauai: March of FY03
IFF Integration and Demonstration: Sept of FY03
Real Time System Demonstration: Jan of FY04

(U) Technical: Not Applicable.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204152N, E-2 SQUADRONS	R3007, UHF ELECTRONICALLY SCANNABLE ANTENNA

(U) C. OTHER PROGRAM FUNDING SUMMARY: Not Applicable

Related RDT&E

(U) D. ACQUISITION STRATEGY: Not Applicable

(U) E. SCHEDULE PROFILE:

	FY 2001	FY 2002	FY 2003	TO COMPLETE
(U) Program Milestones				
(U) Engineering Milestones		PDR - 2 QTR CDR - 4 QTR		
(U) T&E Milestones				
(U) Contract Milestones	Contract Awards - 3rd & 4th QTR	Contract Awards - 3rd & 4th QTR		

R-1 SHOPPING LIST - Item No. 179

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)									DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0204152N, E2 SQUADRONS			PROJECT NUMBER AND NAME R3007, UHF ELECTRONICALLY SCANNABLE ANTENNA							
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Hardware/Software Dev.	C/CPFF	NGC, MD		6.000	03/02	2.000	03/02				8.000	8.000
Hardware/Software Dev.	SS/CPFF	NGC, MD				5.000	05/02				5.000	5.000
Hardware/Software Dev.	SS/FFP	BAE, NY				1.000	05/02				1.000	1.000
Hardware/Software Dev. Misc.	C/CPFF	RCUH, HI		1.000	02/02	4.000	02/02				5.000	5.000
Hardware/Software Dev. - Misc	C/CPFF	TBD				2.846	06/02				2.846	2.846
Hardware/Software Dev - PMS	C/CPFF	Oceanit, HI		1.000	01/02						1.000	1.000
Subtotal Product Development				8.000		14.846					22.846	22.846
Remarks:												
Government Eng. Spt	WX/RC	NAWCAD, PAX RIVER, MD		0.500	02/02	1.000	09/02				1.500	
Government Eng. Spt - Range Support	WX/RC	PMRF, HI		0.500	02/02	1.000	09/02				1.500	
Subtotal Support				1.000		2.000					3.000	3.000
Remarks:												

R-1 SHOPPING LIST - Item No. 179

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0204152N, E2 SQUADRONS				PROJECT NUMBER AND NAME R3007, UHF ELECTRONICALLY SCANNABLE ANTENNA						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Subtotal T&E												
Remarks:												
Subtotal Management												
Remarks:												
Total Cost				9.000		16.846					25.846	
Remarks:												

R-1 SHOPPING LIST - Item No. 179

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204163N
PROGRAM ELEMENT TITLE: Fleet Communication

COST ($ in Thousands)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
X0725 Communications Automation	5,732	9,095	4,793	4,198	4,024	4,096	4,175	CONT	CONT
X1083 Shore to Ship Communications Systems	7,761	9,013	6,716	7,584	10,081	11,247	10,235	CONT	CONT
X0795 Support of MEECN	519	2,338	1,067	1,077	889	1,309	1,376	CONT	CONT
X9100 Programmable Integrated Communications Terminals (PICT)	0	3,370	0	0	0	0	0		
Total P.E. Cost	14,012	23,816	12,576	12,859	14,994	16,652	15,786	CONT	CONT

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Communications Automation Program - This project is a continuing program that provides for automation and communications upgrades for Fleet tactical users. It includes Naval Modular Automated Communications System/Single Messaging Solution II (NAVMACS II/SMS), Digital Wideband Transition System (DWTS) Low-Data Rate (EPLRS), Naval Computer & Telecommunications Area Master Station (NCTAMS), Joint Network Management System (JNMS), Automated Digital Network System (ADNS), and Global Directory Services.

NAVMACS II/SMS develops joint/combined individual and organizational message handling to US Naval ships and submarines, United States Marine Corp (USMC) vans, and selected Military Sealift Command (MSC) and United States Coast Guard (USCG) platforms. NAVMACS II/SMS develops fleet interface to Defense Messaging System (DMS) and legacy ashore messaging systems.

DWTS Low-Data Rate (EPLRS) Navy requires a digital wideband capability, which can be used in amphibious operations where a fixed DWTS station cannot be used. System must be interoperable with Army and Marine Corps EPLRS system**.** DWTS Block Upgrade BRAVO improves the fixed DWTS station to operate at higher bandwidths with greater reliability than the current system. Begin concept exploration for extending DWTS and EPLRS line-of-sight to meet ORD requirements under the Seabridge initiative.

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204163N
PROGRAM ELEMENT TITLE: Fleet Communication

The Joint Network Management System is a CINC, Commander, Joint Forces (CJF) joint communications planning system with Department of the Army as the Executive Agent. It is intended to be an automated software system including capabilities for planning and engineering, monitoring, control and reconfigurations, spectrum management and security.

ADNS provides automated routing and switching of Tactical and Strategic C4I data via Transmission Control Protocol (TCP/IP) networks linking deployed Battle Group units with each other and with the DISN ashore via multiple Radio Frequency (RF) paths. Consists of Commercial Off-The-Shelf (COTS) non-developmental Joint Tactical Architecture (JTA) compliant hardware (routers, processors, switches) and commercial Y2K compliant software (VxWorks toolkit) in a standardized, scalable shock qualified rack design. Provides Internet Protocol (IP) connectivity afloat and ashore. Merges multiple redundant stove pipe communications circuits and efficiently manages RF assets resulting in better throughput using existing RF media. Line includes Network Operation Centers (NOCs) Ashore.

Global Directory Services is a key component of the infrastructure that will be leveraged to support a variety of network operations to include, but not limited to, Single Point of Administration (SPA) and Unified Account Management; Software Distribution; White/Yellow/Blue Pages; Menu, Profile, and Application Management; Public Key Infrastructure (PKI)-enablement of applications/devices; and Network Management. The Global Directory Services will leverage the Afloat deployed White Pages to construct individual ship Afloat Full Service Directories which will create a foundation for further development, over time, to create a ship-to-shore and ship-to-ship Global Directory Services**.**

The Shore to Ship Communications System develops communications systems elements, which provide positive command and control of deployed ballistic missile submarines (SSBNs). Provides the communication elements for continuous assessment of the command and control link between National Command Authority (NCA) and the ballistic missile platforms. Provides the tools for strategic command and control planning to deployed SSBNs.

Minimum Essential Emergency Communications Network (MEECN) is the Tri-Service transmission system, including land-based segment, which ensures delivery of Emergency Action Messages (EAM) to our strategic platforms.

The programmable Integrated Communications Terminal (PICT) is a user voice terminal designed to operate with Integrated Service Digital Network (ISDN) switches and legacy switches to support both interior and radio (external) shipboard communications. The Digital Modular Radio (DMR) system will be integrated into shipboard communications systems that require remote control capability to the radio for various end user applications. These integrated communications systems will include both internal phone and internal communications such as the Integrated Voice Network (IVN) as well as external radio communications.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

B. (U) PROGRAM CHANGE SUMMARY: FY01: Section 8086 .7% pro rata reduction (-84K), Govt Wide rescission (-26K), SBIR (-161K), MUOS UHF offload demonstration BTR (-80K), Department adjustments (+2,351K), FY02: FY02: EKMS Tier 1 (-$500K), Section 8123: Mgmt. Reform Initiative (-212K), Section 8032 FFRDC (-8K), Programmable Integrated Communications Terminals (+3,400K).

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204163N
PROGRAM ELEMENT TITLE: Fleet Communication

C. (U) OTHER PROGRAM FUNDING SUMMARY: See individual projects.

D. (U) ACQUISTION STRATEGY: See individual projects.

E. (U) SCHEDULE PROFILE: See individual projects.

BUDGET ACTIVITY: 7
PROGRAM ELEMENT: 0204163N
PROGRAM ELEMENT TITLE: Fleet Communication
PROJECT NUMBER: X0725
PROJECT TITLE: Communications Automation

Cost ($ in Thousands)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
X0725 Communications Automation	5,732	9,095	4,793	4,198	4,024	4,096	4,175	CONT	CONT

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This project is a continuing program that provides for automation and communications upgrades for Fleet tactical users. The Naval Modular Automated Communications System II (NAVMACS II)/Single Messaging Solution (SMS) is the network centric IP solution for the processing, storage, distribution and forwarding of General Service and Defense Messaging System (DMS) organizational messages to the user's desktop throughout the IT-21 Local Area Network (LAN)/Wide Area Network (WAN). DWTS Low-Data Rate (EPLRS); Navy requires a digital wideband capability which can be used in amphibious operations where a fixed DWTS station cannot be used. System must be interoperable with Army and Marine Corps EPLRS system. Existing DWTS configuration requires improvement in order to provide more reliable performance at the highest bandwidths. DWTS and EPLRS require further development in order to meet objective range requirements; these efforts are combined under the Seabridge initiative. The Joint Network Management System (JNMS) is a CINC, Commander, Joint Forces (CJF) joint communications planning system with the Department of the Army as the Executive Agent. It is intended to be an automated software system including capabilities for planning and engineering, monitoring, control and reconfigurations, spectrum management and security. Automated Digital Network System (ADNS) provides automated routing and switching of Tactical and Strategic C4I data via Transmission Control Protocol (TCP/IP) networks linking deployed Battle Group units with each other and with the Defense Information Systems Network (DISN) ashore via multiple Radio Frequency (RF) paths. Consists of Commercial Off-The-Shelf (COTS) non-developmental Joint Tactical Architecture (JTA) compliant hardware (routers, processors, switches) and commercial Y2K compliant software (VxWorks toolkit) in a standardized, scalable shock qualified rack design. Provides Internet Protocol (IP) connectivity afloat and ashore. Merges multiple redundant stove pipe communications circuits and efficiently manages RF assets resulting in better throughput using existing RF medial. Line includes Network Operation Centers (NOCs) Ashore**.** Global Directory Services is a key component of the infrastructure that will be leveraged to support a variety of network operations to include, but not limited to, Single Point of Administration (SPA) and Unified Account Management; Software Distribution; White/Yellow/Blue Pages; Menu, Profile, and Application Management; PKI-enablement of applications/devices; and Network Management. The Global Directory Services will leverage the Afloat deployed White Pages to construct individual ship Afloat Full Service Directories which will create a foundation for further development, over time, to create a ship-to-shore and ship-to-ship Global Directory Services.

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204163N PROGRAM ELEMENT TITLE: Fleet Communication PROJECT NUMBER: X0725 PROJECT TITLE: Communications Automation

PROGRAM ACCOMPLISHMENTS AND PLANS:

- FY 2001 Accomplishments:

  ($1,334) Completed development of emerging technologies (SMS Support Server) which included Multicast NT (ISDS) integration, DMS 2.2 interface products, and DMDS 5.0 profiler. Completed PCI Front End Processor (FEP) Phase II circuits. Conducted Security Accreditation engineering and evaluation for surface and submarine SMS configurations. Conducted development, integration, test and evaluation of Fleet SIPRNet Messaging (FSM) IP interface. Integrated the DMDS 5.0 backend profiler with NAVMACSII Message Processor. Conducted Messaging Architecture evaluation during JUICE exercise.

  ($4,398) Began Risk Reduction RDT&E for Low-Data DWTS (EPLRS). Conducted DT-I and MS-II DWTS LDR (EPLRS). Designed, developed, and tested DWTS Block Upgrade BRAVO to improve radio performance at the highest data rates.

- FY 2002 PLAN:

  ($1,942) Conclude EMD Phase including ILS development and DT/OT-II DWTS LDR (EPLRS). Conduct concept exploration and component advanced development for Seabridge concept.

  ($1,898) Continue test and evaluation of emerging technologies to include SSS Multi-Cast Applications and Lightweight Directory Access Protocol (LDAP) services. Continue SCI and Top Secret IP messaging automation engineering and testing. Initiate research into multilevel security messaging.

  ($498) Support testing of JNMS for Integrated Shipboard and Network Systems (ISNS), ADNS, and lab activities for security accreditation of the system.

  ($3,132) Begin research and development to support major technology refresh to include integration of ADNS and ISNS software and hardware. Begin development for Integrated Voice, Video and Data within the shipboard ADNS environment. Begin development to support the time division multiplexing transition. Development required for additional routers and RF interfaces as they become available to ensure continued inter-operability and scalability. Investigate, develop and test ADNS technology upgrades to incorporate into existing architecture until integrated system is available. The ADNS program must prepare for efficient insertion of replacement technology being driven by an eighteen month technology change cycle. Investigate, develop and test Network Management to merge with existing ADNS development solutions.

  ($1,625) Global Directory Services: Provide initial engineering design efforts for a directory service architecture in the Ashore and Afloat support communities which support major programs (GCCS-M, NTCSS, etc) and general network environments. Provide development for enhancement to the

directory service product. Modify ship data feed to Navy/Marine Corps White Pages and expand Common Access Card (PKI SmartCard) capability and integrate with Single Sign-On functionality. Develop Directory Services menus and applications including Navy/Marine Corps Yellow and Blue Pages.

- FY 2003 PLAN:

($2,029) Initiate development and test efforts for multi-enclave messaging. Continue test and evaluation of emerging technology and product upgrades such as DMS 4.0, DMDS, multicast, and GOTS Delta products. Develop and integrate Afloat SCI messaging with Shore DMS products. Continue research into multilevel security messaging.

($1,014) Continue development and integration to support future technology refresh interfaces. Continue integration and implementation to Genser ADNS capabilities.

($1,750) Provide continuing design and development efforts that will build an enterprise-wide directory service environment by bridging efforts developed in FY02. Specifically providing for the development of a global meta-directory service to integrate disparate directory services used throughout the Naval community. Efforts also include developing a directory service architecture to support the development of Universal E-mail and providing developmental engineering support for the new functionality that would interact with the Navy/Marine Corps white Pages and related directory service environments.

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204163N PROJECT NUMBER: X0725
PROGRAM ELEMENT TITLE: Fleet Communication PROJECT TITLE: Communications Automation

OTHER PROGRAM FUNDING SUMMARY:

	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete	Total Cost
OPN Line 3050 – Comm Auto - NAVMACS	19,667	16,733	17,218	12,441	16,817	18,706	5,905	CONT	CONT
OPN Line 3050 – Comm Auto – JNMS	0	654	3,649	1,097	0	2,853	2,172	CONT	CONT
OPN Line 3050 – Comm Auto – ADNS	32,706	22,830	16,532	16,532	3,026	14,819	8,332	CONT	CONT
OPN Line 3010 – 52NU Ship TAC Comms- DWTS	5,445	3,824	1,038	7,441	2,510	0	0	CONT	CONT
O&MN 4A6M – NAVMACS	1,225	1,034	2,609	2,383	2,321	2,318	2,398	CONT	CONT
O&MN 4B7N – DWTS (EPLRS)	110	141	126	478	470	469	524	CONT	CONT
O&MN 4A6M – ADNS	2,472	4,904	6,090	5,859	6,402	6,346	6,198	CONT	CONT
O&MN 4A6M – JNMS	0	1,116	1,093	1,166	1,174	1,190	1,227	CONT	CONT

C. Acquisition Strategy: N/A

BUDGET ACTIVITY: 7
PROGRAM ELEMENT: 0204163N
PROGRAM ELEMENT TITLE: Fleet Communication
PROJECT NUMBER: X0725
PROJECT TITLE: Communications Automation

D. Schedule Profile:

	FY2001	FY2002	FY2003
Program Milestones			
T & E Milestones	2Q DWTS TECHEVAL Block A 4Q DWTS TECHEVAL Block B	4Q EPLRS DT/OT	

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204163N PROJECT NUMBER: X0725

Exhibit R-3 Cost Analysis (page 1)												Date:
APPROPRIATION/BUDGET ACTIVITY 7			PROGRAM ELEMENT Fleet Communications 0204163N									PROJECT NAME AND NUMBER: X0725 Communications Automation
Cost Categories	Contract Method & Type	Performing Activity & Location	Total FY00 and PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
240 Engineering Development	WX	SSC, San Diego	685	2,385	10/00	828	10/01				CONT	CONT
240 Engineering Development	CPFF	BAH	348									
240 Engineering Development	Various	Various	329		Var	127	Var				CONT	CONT
240 Engineering Development	WX	SSC, Charleston	1,856	313		1,649	12/01				CONT	CONT
240 Engineering Development	CPFF	MAXIM						630	10/02		CONT	CONT
Primary Hardware Development	WX	SSC, Charleston		107								
Primary Hardware Development	Various	DSCC	617									
Primary Hardware Development	WXs	SSC, San Diego	795	1,295			Var					
Prime Mission Product	Various	SSC, San Diego				1,023	12/01	474	12/02		CONT	CONT
Prime Mission Product	Various	SSC, Charleston						853	10/02			
Prime Mission Product	Various	SSC, Charleston				1,034	12/01	244	12/02		CONT	CONT
Software Development	Various	Various	N/A		5/01	1,639	12/01	1,638	12/02		CONT	CONT
Subtotal Product Development			4,630	4,100		6,300		3,839			CONT	CONT
Remarks:												

FY 2003 RDT&E, N PROJECT COST ANALYSIS

Exhibit R-3, RDT&E,N Project Cost Analysis Date:February 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204163N PROJECT NUMBER: X0725

Cost Categories	Contract Method & Type	Performing Activity & Location	FY00 and Prior	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
400 System T&E	WX	SSC, Charleston			10/00							
400 System T&E	WX	SSC, San Diego		1,407	10/00	782	12/01				CONT	CONT
400 System T&E	WX	Various				350	12/01					
400 System T&E	WX	SSC, Charleston			10/00			366	12/01			
400 System T&E	WX	SSC, San Diego	37					146	12/02		CONT	CONT
400 System T&E	N/A	OPTEVFOR				315	12/01	60	12/02			
400 System T&E	Var	SSC, Charleston				756	12/01	97	12/02			
Subtotal T&E			37	1,407		2,203		669				
Remarks												
210 Project Management	WX	SSC, San Diego	749	225	10/00	343	10/01			CONT	CONT	CONT
210 Project Management	CPFF	BAH	350			249	12/01	102	12/02	CONT	CONT	
210 Project Management	CPFF	BAH			10/00			183	12/02	CONT	CONT	
Subtotal Management			1,099	225		592		285				
Remarks												
Total Cost			5,766	5,732		9,095		4,793				
Remarks												

Exhibit R-2a, RDT&E,N Project Justification Date:February 2002

BUDGET ACTIVITY: 7
PROGRAM ELEMENT: 0204163N
PROGRAM ELEMENT TITLE: Fleet Communications
PROJECT NUMBER: X1083
PROJECT TITLE: Shore to Ship Communication System

Cost ($ in Thousands)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
X1083 Shore to Ship Communications System	7,761	9,013	6,716	7,584	10,081	11,247	10,235	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This project develops communications systems elements that provide positive command and control of deployed ballistic missile submarines (SSBNs) and fleet submarine broadcast connectivity to SSNs and SSBNs. This program provides enhancements to the shore-to-ship transmitting systems and the Submarine Low Frequency (LF)/Very Low Frequency (VLF) Versa Module Eurocard (VME) Receiver (SLVR) System. This project also provides submarine unique capabilities to the Network Operation Center (NOC) and Broadcast Command Authority (BCA). The NOC and the BCA provide the oversight and control for all fixed submarine broadcasts. Evaluation of this communications system performance is provided via the Strategic Communications Assessment Program (SCAP) and the Continued Evaluation Program (CEP) that provides constant assessment of the effectiveness of the end-to-end network. Submarine Communications Support System (SCSS) accomplishes the integration of component systems into single radio room configuration. Phase I integration and land-based test of SCSS was completed during FY01, at sea testing will be completed in FY02 and the follow on phase II efforts have been renamed Common Submarine Radio Room (CSRR). In support of the CSRR, multifunctional crypto system (MCS) is being developed. This project contributes to the development and certification of the MCS. Technologies to improve high voltage insulators, bushings and antenna components used in the Fixed VLF (FVLF) transmit systems are evaluated and tested through the High Voltage Improvement Program (HVIP). Composite bushings take advantage of new material technology to replace aging expensive ceramic bushings.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

FY 2001 ACCOMPLISHMENTS:

- ($323) Continued high voltage and antenna component development and test. Tested candidate composite exit bushings to replace aging high cost ceramic exit bushings.

- ($2,008) Continued development of the ELF and Signal Processing integration into SLVR.

- ($1,413) Completed SCSS Phase I integration and land-based test and started development of the multifunctional crypto system (MCS).
- ($4,017) Continued SCAP, collected data and performed strategic connectivity threats analysis under CEP.

FY 2002 PLAN:

- ($368) Complete high voltage on-site testing and evaluation of composite bushings with focus on development of system to detect onset of corona breakdown which will provide a heightened protection to present day carrier cutoff systems at FVLF sites.
- ($1,095) Complete SCSS Phase I at –sea testing and continue engineering, integration and test for CSRR architecture and component upgrades and continue development of MCS.
- ($2,492) Complete development of ELF integration into SLVR and commence system level testing to meet FY03 Virginia Class requirement.
- ($4,039) Continue SCAP, conduct CEP and strategic connectivity threats, and perform analysis.
- ($670) Conduct research and development necessary for integration of shore based submarine unique capabilities at the Network Operation Center (NOC) and Broadcast Control Authority (BCA).
- ($349) Investigate technology and initiate design concepts for integrated FVLF dynamic control system.

FY 2003 PLAN:

- ($547) Complete development of system to detect onset of corona breakdown which will provide a heightened protection to present day carrier cutoff systems at FVLF sites .
- ($925) Continue engineering, integration and test for CSRR architecture and component upgrades and complete development and testing of MCS.
- ($4,059) Continue SCAP, conduct CEP and strategic connectivity threats, and perform analysis.
- ($485) Continue design concept and initial feasible studies for integrated FVLF dynamic control system.
- ($700) Complete research and development necessary for development of shore based submarine unique capabilities at the NOC and BCA.

Exhibit R-2a, RDT&E,N Project Justification Date:February 2002

BUDGET ACTIVITY: 7
PROGRAM ELEMENT: 0204163N
PROGRAM ELEMENT TITLE: Fleet Communications
PROJECT NUMBER: X1083
PROJECT TITLE: Shore to Ship Communication System

B. (U) OTHER PROGRAM FUNDING SUMMARY

	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Total Complete	Cost
OPN Line 3107 Shore LF	30,901	17,362	5,427	17,032	18,921	13,855	11,720	CONT	CONT
O&MN 4A6M	10,559	15,676	16,523	18,943	24,039	23,116	22,684	CONT	CONT

Exhibit R-2a, RDT&E,N Project Justification Date:February 2002

BUDGET ACTIVITY: 7
PROGRAM ELEMENT: 0204163N
PROGRAM ELEMENT TITLE: Fleet Communications
PROJECT NUMBER: X1083
PROJECT TITLE: Shore to Ship Communication System

C. (U) ACQUISITION STRATEGY:

	FY 2001	FY 2002	FY 2003
Program Milestones			
T&E Milestones	2Q DT (SSN) 3Q OT IV		

D. (U) SCHEDULE PROFILE: See paragraph C.

Cost Categories	Contract Method & Type	Performing Activity & Location	FY 00 and Prior	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
240 Engineering Support	CPIF	Rockwell, Richardson, TX	15,864	0	N/A	0	N/A	0	N/A	Complete	15,864	N/A
240 Engineering Support	CPFF	APL/JHU Baltimore, MD	24,378	3,659	11/00	3,712	12/01	3,760	12/02	CONT	CONT	CONT
240 Engineering Support	WR	SSC, San Diego, CA	28,571	2,007	11/00	3,085	11/01	1,516	11/02	CONT	CONT	N/A
240 Engineering Support	WR	Miscellaneous Labs, NUWC	6,247	1,285	11/00	519	11/01	624	11/02	CONT	CONT	N/A
240 Engineering Support	WR	U.S. Army, Monmouth, NJ	3,790	130	11/00	0	11/01	0	N/A	CONT	CONT	N/A
240 Engineering Support	Various	Various	0	0	N/A	0	N/A	0	N/a		0	
Subtotal Product Development			78,850	7,081		7, 316		5,900				
Remarks:												
Subtotal Support												
Remarks												

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204163N PROJECT NUMBER: X1083

Cost Categories	Contract Method & Type	Performing Activity & Location	FY00 and Prior	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
400 System T&E	Various	Various	850	297	11/00	1,298	11/01	482	11/02	CONT	CONT	
Subtotal T&E			850	297		1,298		482				
Remarks												
210 Program Management	Various	Various	3,047	383	11/00	399	11/01	334	11/02	CONT	CONT	
Subtotal Management			3,047	383		399		334				
Remarks												
Total Cost			82,747	7,761		9,013		6,716				
Remarks												

Exhibit R-3, RDT&E,N Project Justification Date: February 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204163N PROJECT NUMBER: X0795
PROGRAM ELEMENT TITLE: Fleet Communications PROJECT TITLE: MEECN

Cost ($ in Thousands)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
X0795 MEECN	519	2,338	1,067	1,077	889	1,309	1,376	CONT	CONT

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION

Support of Minimum Essential Emergency Communications Network (MEECN). MEECN is the Tri-Service communication system that ensures delivery of Emergency Action Messages (EAMs) to our strategic platforms including the land based delivery system components. Because of substantial downsizing in the number of MEECN assets, such as the CINC Airborne National Command Post (ABNCP) fleet, it is necessary to improve the range, timeliness and reliability of MEECN communications to maintain connectivity to the platforms. This project identifies, researches, and develops improvements to the MEECN primarily in the Very Low Frequency and Low Frequency (VLF/LF) ranges of MEECN. The new High Data Rate (HIDAR) mode, which greatly reduces message transmission time while providing the performance of low data rate modes, has been deployed. Improvements in mode design and signal processing are being investigated for MEECN application into a common Unified Mode design to support all VLF Strategic Platforms. A new generation of high performance universal mode will be defined to provide a single standard MEECN replacement to take advantage of new computer processing capability.

FY 2001 ACCOMPLISHMENTS:

- ($220) Incorporated improved MEECN Mode into Mode Standard.
- ($267) Incorporated Mode Standard design into Mode Standard MEECN Test Bed for performance evaluation.
- ($32) Investigated applicability of commercial programmable crypto devices to the MEECN transmission.

FY 2002 PLAN:

- ($234) Complete MEECN Mode Standard.
- ($243) Complete verification of Mode Standard performance in MEECN testbed.
- ($ 23) Complete evaluation of commercial programmable crypto.
- ($1,838) Develop a non-AUTODIN based Emergency Action Messages (EAMs) delivery system.

FY 2003 PLAN:

- ($466) Update improved MEECN Mode for a simplified high performance airborne transmit.
- ($560) Continue non-AUTODIN based Emergency Action Messages (EAMs) delivery system (NOVA Hybrid Solution) and complete NOVA Hybrid Solution certification testing to support the FY03 AUTODIN closure.
- ($41) Incorporate transverse electric/magnetic antenna pattern combining methods into improved MEECN Mode.

B. (U) OTHER PROGRAM FUNDING SUMMARY

	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete	Total Cost
O&MN 4A6M	55	525	593	685	655	657	676	CONT	CONT

C. (U) ACQUISITION STRATEGY: Not applicable.

D. (U) SCHEDULE PROFILE: Not applicable.

BUDGET ACTIVITY: 7
PROGRAM ELEMENT: 0204163N
PROGRAM ELEMENT TITLE: Fleet Communication
PROJECT NUMBER: X9100
PROJECT TITLE: Programmable Integrated Communications Terminals

Cost ($ in Thousands)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
X9100 Programmable Integrated Communications Terminals (PICT)		3,370							

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The programmable Integrated Communications Terminal (PICT) is a user voice terminal which is designed to operate with Integrated Service Digital Network (ISDN) switches and legacy switches to support both interior and radio (external) shipboard communications. The Digital Modular Radio (DMR) system will be integrated into shipboard communications systems that require remote control capability to the radio for various end user applications. These integrated communications systems will include both internal phone and internal communications such as the Integrated Voice Network (IVN) as well as external radio communications.

PROGRAM ACCOMPLISHMENTS AND PLANS:

- FY 2001 Accomplishments: N/A

- FY 2002 PLAN:

  ($3,370) Combine the Integrated Voice Network and the Programmable Integrated Communications Terminal with the Digital Modular Radio. Design and develop upgrades to the user terminal, switches and DMR controllers to allow the radio control functions to be remotely controlled from the user terminals. Integrate and test to demonstrate that the system design will meet specification requirements and is interoperable end-to-end from the user voice terminal to the radio.

  FY 2003 PLAN: N/A

BUDGET ACTIVITY: 7
PROGRAM ELEMENT: 0204163N
PROGRAM ELEMENT TITLE: Fleet Communication
PROJECT NUMBER: X9100
PROJECT TITLE: Programmable Integrated Communications Terminals

OTHER PROGRAM FUNDING SUMMARY: N/A

FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete	Total Cost

E. Acquisition Strategy: N/A

F. Schedule Profile: N/A

FY2001	FY2002	FY2003

Program Milestones: N/A

T & E Milestones: N/A

FY 2003 RDT&E, N PROJECT JUSTIFICATION

Exhibit R-2a, RDT&E,N Project Justification Date:February 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204163N PROGRAM ELEMENT TITLE: Fleet Communication PROJECT NUMBER: X9100 PROJECT TITLE: Programmable Integrated Communications Terminals

Exhibit R-3 Cost Analysis (page 1)												Date:
APPROPRIATION/BUDGET ACTIVITY 7			PROGRAM ELEMENT Fleet Communications 0204163N									PROJECT NAME AND NUMBER: X9100 PICT
Cost Categories	Contract Method & Type	Performing Activity & Location	Total FY00 and PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
240 Engineering Development	WX	SSC, San Diego				800	02/02				CONT	CONT
240 Engineering Development	WX	SSC, Charleston				1,435	02/02					
240 Engineering Development	CPFF	MAXIM				300	02/02					
Subtotal Product Development						2,535					CONT	CONT
Remarks:												

FY 2003 RDT&E, N PROJECT JUSTIFICATION

Exhibit R-2a, RDT&E,N Project Justification Date:February 2002

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204163N
PROGRAM ELEMENT TITLE: Fleet Communication

PROJECT NUMBER: X9100
PROJECT TITLE: Programmable Integrated Communications Terminals

Cost Categories	Contract Method & Type	Performing Activity & Location	FY00 and Prior	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
400 System T&E	WX	SSC Charleston				300	02/02					
400 System T&E	WX	SSC, San Diego				300	02/02					
Subtotal T&E						600						
Remarks												
210 Project Management	WX	SSC, San Diego				150	02/02					
210 Project Management	CPFF	BAH				85	02/02					
Subtotal Management						235						
Remarks												
Total Cost						3,370						

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification									DATE: **February 2002**		
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7**						R-1 ITEM NOMENCLATURE 0204229N Tomahawk and Theater Mission Planning Center					
COST ($ in Millions)	Prior Years Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost			**92.456**	**75.347**	**94.265**	**60.594**	**34.156**	**13.665**	**13.945**	**Continuing**	**Continuing**
A0545 Tomahawk			**90.706**	**75.347**	**94.265**	**60.594**	**34.156**	**13.665**	**13.945**	**Continuing**	**Continuing**
A1784 Theatre Mission Planning Center	**94.635**		**1.750**								**96.385**
Quantity of RDT&E Articles	EDM **10**										**10**

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) The Tomahawk Weapons System (TWS) provides the Tomahawk cruise missile attack capability against targets on land (Tomahawk Land Attack Missile (TLAM)). The TLAM can be fitted with either Conventional unitary warhead (TLAM/C), Nuclear warhead (TLAM/N) or submunition Dispenser (TLAM/D). This program ensures that the TWS exploits state-of-the-art technology to preserve the efficiency of this proven weapon system.

(U) The Tomahawk project includes all missile development, mission planning system development, and submarine and surface ship weapons control development.

(U) The Tactical Tomahawk (TT) missile development covered by this budget provides a comprehensive baseline upgrade to the TWS. The TT weapons program will provide the tactical commander a quick reaction response capability as well as improved flexibility, accuracy, and lethality.

(U) This budget provides for the Tomahawk Command and Control System (TC2S) Theater Mission Planning Center (TMPC) and Afloat Planning System (APS), a shipboard version of TMPC. TMPC and APS provide mission planning and employment support information for both the nuclear (TMPC only) and conventional TLAM. This project also supports the distribution of mission data and command information essential to TLAM employment via the Mission Distribution System (MDS) and associated communications infrastructure. TMPC and APS software development decreases mission planning time and increases the quality and accuracy of each mission for Block II and III TLAM. The development of Tactical Tomahawk capabilities in TMPC/APS/MDS includes software development, integration, test, and delivery; support for TECHEVAL and OPEVAL; development of training; installation planning; and simulation/model development required by COMOPTEVFOR to offset live missile flights in TECHEVAL and OPEVAL. This project includes development required by future national and tactical imagery architectures.

R-1 SHOPPING LIST - Item No. 181

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7**	R-1 ITEM NOMENCLATURE 0204229N Tomahawk and Theater Mission Planning Center

(U) The Tomahawk Weapons Control System provides launch capability for surface and submarine platforms. Submarine ATWCS Block 1/C Mod 0/1 completed IOC in FY01. Tactical Tomahawk Weapons Control System entered Engineering and Manufacturing Development (EMD) in FY99 with Phase 1A IOC planned for FY03.

(U) These efforts provide battle-group tactical flexibility and responsiveness while maximizing TWS wartime capability.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

R-1 SHOPPING LIST - Item No. 181

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2002			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204229N TOMAHAWK AND THEATER MISSION PLANNING CENTER					PROJECT NUMBER AND NAME A0545 TOMAHAWK					
COST ($ in Millions)	Prior Years Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost			**90.706**	**75.347**	**94.265**	**60.594**	**34.156**	**13.665**	**13.945**	**Continuing**	**Continuing**
RDT&E Articles Qty	EDM 10										**10**

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) The TOMAHAWK Cruise Missile has been designed to accurately attack land targets from seaborne platforms at great distances from the launch platform. The Tomahawk Land-Attack Missile (TLAM) can be produced with either a single Conventional warhead (TLAM/C), a submunition Dispenser (TLAM/D), or a Nuclear warhead (TLAM/N).

(U) The Tomahawk development program (Project A0545) contains all costs for the Tactical Tomahawk (TT) program including the missile, weapons control systems, both surface ship and submarine, and Tomahawk Command and Control Systems (TC2S).

(U) The TT missile development covered by this budget provides a comprehensive baseline upgrade to the Tomahawk Weapon System including the missile, weapons control systems, and mission planning systems. The upgrade will improve system flexibility, responsiveness, accuracy and lethality. The essential elements of the TT are upgrades to the guidance, navigation, control, and mission computer systems of the missile along with the associated Command and Control (C2) systems and weapons control systems. TT will provide a UHF Satcom data link to enable the missile to receive in-flight mission modification messages, to transfer health and status messages, and to broadcast Battle Damage Indication (BDI) messages. TT also includes a high anti-jam GPS receiver, navigation improvements including Precision Terrain Aided Navigation (PTAN), and associated antenna systems. The Tomahawk program (A0545) also includes development of Torpedo Tube Launch (TTL) capability for submarines and the development of a penetrator variant of Tactical Tomahawk (TTPV).

(U) The weapons control development portion of the project is centered on the Tactical Tomahawk Weapons Control System (TTWCS), being introduced into the surface and submarine fleets. The TTWCS advancements are increased data throughput, thereby reducing the time needed to execute missile preparation and launch sequences, and improving strike coordination capabilities.

(U) The development of TT capabilities in TC2S includes software development, integration, test, and delivery; support for TECHEVAL and OPEVAL; development of training; installation planning; and simulation/model development.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204229N TOMAHAWK AND THEATER MISSION PLANNING CENTER	A0545 TOMAHAWK

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2001 ACCOMPLISHMENTS:

(U) ($47.177) Conducted Development, Integration and Qualification Testing of Tactical Tomahawk missile.
(U) ($20.417) Incorporated new capabilities in Tomahawk Command and Control systems necessary for the employment of the Tactical Tomahawk missile.
(U) ($23.112) Completed software development and began Government Testing of Weapons Control System. Conducted Phase 1A Land Based System Integration Tests of redesigned surface and submarine Weapons Control Systems.

2. FY 2002 PLANS:

(U) ($42.232) Conduct Contractor Flight Testing of Tactical Tomahawk missile. Complete missile Development, Integration and Qualification testing. Initiate Government flight test.
(U) ($17.143) Continue the incorporation of new capabilities in Tomahawk Command and Control systems necessary for the employment of Tactical Tomahawk, support Tactical Tomahawk Weapon System TECHEVAL, and continue development of related training and installation materials.
(U) ($14.712) Complete Phase IA land based tests of weapons control system. Initiate TECHEVAL/OPEVAL for Phase 1A. Conduct Phase 1B Land Based and Sea Based System Integration Testing.
(U) ($ 2.260) Portion of extramural program reserved for Small Business Innovation Research Assessment in accordance with 15 USC 638.

3. FY2003 PLANS:

(U) ($64.682) Continue Government flight testing of Tactical Tomahawk missile. Complete TECHEVAL, initiate OPEVAL. Initiate Tactical Tomahawk Penetrator Variant (TTPV) Engineering & Manufacturing Development, and hardware/software development and integration for Tactical Tomahawk Torpedo Tube Launch (TTL) modifications.
(U) ($22.102) Continue the incorporation of new capabilities in Tomahawk Command and Control systems necessary for the employment of Tactical Tomahawk, support Tactical Tomahawk Weapon System TECHEVAL, and continue development of related training and installation materials.
(U) ($7.481) Complete OPEVAL for Phase 1A of Weapons Control System. Continue Phase 1B Land Based and Sea Based System Testing. Initiate TECHEVAL/OPEVAL for Phase 1B.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204229N TOMAHAWK AND THEATER MISSION PLANNING CENTER	A0545 TOMAHAWK

(U) B. PROGRAM CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	88.610	76.014	
(U) Adjustments from the FY 2002 President's Budget:	2.096	(0.667)	
(U) FY 2003 President's Budget:	90.706	75.347	94.265

CHANGE SUMMARY EXPLANATION:

(U) Funding:

The FY 2001 net increase $2.096 million consists of an increase of 4.135 million for Precision Terrain Aided Navigation offset by a decrease of $1.802 million for a Small Business Innovation Research Assessment, a decrease of $0.220
for reprioritization of requirements within the Navy,and a decrease of $.017 million for a Federal Technology Transfer.

The FY 2002 net decrease of $0.667 million consists of an undistributed Congressional reduction.

Schedule: Not Applicable

Technical: Not Applicable

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete	Total Cost
WPN BLI 210100 Tomahawk	0.000	73.975	145.820	299.190	296.430	400.450	440.692	0.000	1656.557
OPN BLI 525000 Surface Tomahawk Support Equipment	43.070	60.384	53.614	41.333	42.890	46.733	31.411	484.470	803.905
OPN BLI 525500 Submarine Tomahawk Support Equipment	2.823	3.019	5.262	8.795	28.798	28.709	28.549	115.984	221.939

Related RDT&E,N: Not Applicable

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204229N TOMAHAWK AND THEATER MISSION PLANNING CENTER	A0545 TOMAHAWK

(U) D. ACQUISITION STRATEGY: In 1998, the Tomahawk Baseline Improvement Program (TBIP) transitioned to the Tactical Tomahawk program. This program is outlined in the Class Justification and Approval (CJ&A No AIR-22448) signed by the Under Secretary of the Navy on 29 May 1998. The acquisition strategy was to transition the Tomahawk Baseline Improvement Program (TBIP) to Tactical Tomahawk. The Tactical Tomahawk development program is a cost sharing contract between the Government and the Contractor to add capability to the missile. As part of the development, the contractor provided an unsolicited proposal with a fixed unit price of $569 thousand (FY99) dollars. This price is predicated on the government pursuing and obtaining a multi-year procurement.

(U) E. SCHEDULE PROFILE:

	FY 2001	FY 2002	FY 2003	TO COMPLETE
(U) Program Milestones			1Q/03-OA Complete	2Q/04-IOC 3Q/04-MS III 4Q/05 TTPV IOC 1Q/06 TT-TTL IOC
(U) Engineering Milestones				
(U) T&E Milestones	4Q/01 AUR System Integration Complete	4Q/02 AUR System Qual Complete	4Q/03-TECHEVAL Complete	2Q/04-OPEVAL Complete
(U) Contract Milestones		3Q/02-LRIP One Award	2Q/03-LRIP Two Award	

Definitions:
AUR - All-Up-Round
CDR - Critical Design Review
EMD - Engineering & Manufacturing Development
IOC - Initial Operational Capability
LRIP - Low Rate Initial Production
OA - Operational Assessment
PDR - Preliminary Design Review
TT - Tactical Tomahawk
TTL - Torpedo Tube Launch
TTPV - Tactical Tomahawk Penetrator Variant

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0204229N/TOMAHAWK AND THEATER MISSION PLANNING CENTER				PROJECT NUMBER AND NAME A0545 TOMAHAWK						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development												
All Product Development Costs,												
1974 through TBIP Costs in 1998			2,176.447								2,176.447	
Tactical Tomahawk Program												
AUR	C/CPFF	Raytheon, Tucson, AZ	160.758	19.330	11/00	19.027	11/01	5.510	11/02		204.625	204.625
Launcher Integration	TBD	NAVSEA, Washington, DC	17.372	2.671	11/00			3.400	12/02		23.443	
TacticalTomahawkPenetratorVariant	C/CPFF	Raytheon, Tucson, AZ						10.600	11/02		10.600	10.600
Torpedo Tube Launch	C/CPFF	Raytheon, Tucson, AZ						3.221	11/02		3.221	3.221
Systems Engineering	C/FP	Raytheon, Tucson, AZ	6.000	2.000	11/00	1.000	11/01	1.059	11/02		10.059	10.059
	SS/CPFF	UARC APL, Laurel, MD	11.587	5.035	01/01	3.076	01/02	3.134	01/03		22.832	22.832
	C/FP	Boeing, St. Louis, MO	3.000								3.000	3.000
Subtotal Product Development			2,375.164	29.036		23.103		26.924		Continuing	Continuing	

Remarks: None

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)					DATE: **February 2002**						
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0204229N/TOMAHAWK AND THEATER MISSION PLANNING CENTER			PROJECT NUMBER AND NAME A0545 TOMAHAWK						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Development Support	Economy Act	NSWC, Dahlgren VA	7.256	2.126	11/00	1.261	11/01	0.749	11/02	Continuing	Continuing	
	Economy Act	NAWC-WD, China Lake, CA	7.074	1.352	11/00	0.746	11/01	1.274	11/02	Continuing	Continuing	
	Economy Act	NSWC, Pt Hueneme, CA	3.043	0.152	11/00	0.202	11/01	0.139	11/02	Continuing	Continuing	
	Economy Act	NAWC-AD, Pax River, MD	2.425	1.310	11/00	0.338	11/01	0.522	11/02	Continuing	Continuing	
	Economy Act	NWAD, Corona	0.652	0.390	11/00	0.286	11/01	0.193	11/02	Continuing	Continuing	
	Economy Act	NUWC, Newport, RI	1.842	1.617	11/00	0.501	11/01	0.274	11/02	Continuing	Continuing	
	SS/CPFF	SAIC, Arlington, VA	3.165	2.199	12/00	1.279	12/01	1.839	12/02	Continuing	Continuing	
	Economy Act	NSWC, Indian Head, MD	1.944	2.152	11/00	0.675	11/01	0.371	11/02	Continuing	Continuing	
	Economy Act	NSWC, Carderock, MD		0.668	01/01	0.907	11/01	0.165	11/02	Continuing	Continuing	
	C/CPFF	Honeywell, Minneapolis, MN		1.538	04/01						1.538	1.538
		Various	14.635	0.859		0.310		0.402		Continuing	Continuing	
Other Development												
Mission Planning Systems (TC2S)	SS/CPFF	Raytheon, Arlington, VA	5.100								5.100	5.100
	SS/CPFF	Boeing, St. Louis, MO		0.650	12/00			1.100	12/02		1.750	1.750
	SS/CPFF	ComGlobal, San Jose, CA		9.401	12/00	7.505	12/01	12.080	12/02	2.136	31.122	31.122
	SS/CPFF	SAIC, Arlington, VA		5.465	12/00	3.049	12/01	4.204	12/02	3.609	16.327	16.327
	SS/CPFF	URAC APL, Laurel, MD		4.246	12/00	4.300	12/01	5.062	12/02	5.106	18.714	18.714
	SS/CPFF	BAE Systems, San Diego, CA		0.329	12/00	0.600	12/01	0.640	12/02	1.699	3.268	3.268
	SS/CPFF	Lockheed, Valley Forge, PA		0.326	12/00	1.689	12/01	1.929	12/02	5.210	9.154	9.154
Weapons Control Systems	C/CPAF	Lockheed, Valley Forge, PA	58.695	20.768	12/00	8.884	12/01	7.556	12/02	0.554	96.457	96.457
	Economy Act	NSWC, Dahlgren VA	15.393	0.910	11/00	3.324	11/01	1.411	12/02	Continuing	Continuing	
	Economy Act	NUWC, Newport, RI	9.364	1.434	11/00	1.700	11/01	1.109	12/02	Continuing	Continuing	
	SS/CPFF	URAC APL, Laurel, MD				0.804	12/01	0.605	12/02	0.369	1.778	1.778
Subtotal Support			130.588	57.892		38.360		41.624		Continuing	Continuing	

Remarks: None

R-1 SHOPPING LIST - Item No. 181

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0204229N/TOMAHAWK AND THEATER MISSION PLANNING CENTER				PROJECT NUMBER AND NAME A0545 TOMAHAWK						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	SS/CPFF	Raytheon, Tucson, AZ	19.574			5.880	11/01	9.618	11/02	3.834	38.906	38.906
	Economy Act	COMOPTEVFOR, VA	1.603	0.230	11/00	0.400	11/01	0.670	12/02	Continuing	Continuing	
	Economy Act	NAWC, Pt Mugu Test Ctr, CA	6.711	1.847	11/00	3.422	11/01	9.743	11/02	Continuing	Continuing	
	Economy Act	NOSC, San Diego CA		0.700	04/01	0.575	11/01	1.506	11/02	Continuing	Continuing	
	Economy Act	NUWC, Newport RI		0.235	11/00	0.205	11/01	1.400	11/02	Continuing	Continuing	
	SS/CPFF	URAC APL, Laurel MD		0.200	11/00	0.645	11/01	1.170	12/02		2.015	2.015
	Economy Act	NSWC, Dahlgren VA		0.330	11/00	0.447		1.400	11/02	Continuing	Continuing	
		Various	3.247	0.236	11/00	0.050	11/01	0.210	01/03	Continuing	Continuing	
Subtotal T&E			31.135	3.778		11.624		25.717				
Remarks: None												
Management												
SBIR Assessment						2.260					2.260	
Subtotal Management						2.260					2.260	
Remarks: None												
Total Cost			2,536.887	90.706		75.347		94.265		Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST - Item No. 181

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204229N TOMAHAWK AND THEATER MISSION PLANNING CENTER					PROJECT NUMBER AND NAME A1784 THEATER MISSION PLANNING CENTER					
COST ($ in Millions)	Prior Years Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**94.635**		**1.750**								**96.385**
RDT&E Articles Qty											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) The TOMAHAWK Theater Mission Planning Center (TMPC) ashore and Afloat Planning System (APS) provide data base generation and processing, flight mission data, command and control information preparation, and distribution for nuclear (TMPC only) and conventional TOMAHAWK Land Attack Missiles. The TMPC project designs and develops software to decrease mission planning time in response to contingency requirements, improves the production of missile data for distribution and provides automated command and control information for employment and strike planning. APS utilizes the TMPC software on down sized and ruggedized computer hardware for use in support of Afloat Strike Warfare Commanders. This improves battle-group tactical flexibility and responsiveness while maximizing TOMAHAWK Weapon Systems (TWS) warfare capability. The TMPC and APS systems will be compatible with the Navy Command and Control Systems and the TOMAHAWK Weapon System. Tomahawk Strike Planning Tools are comprised of two elements, the Mission Distribution System (MDS) and the Electronic TOMAHAWK Employment Planning Package (ETEPP). The Mission Distribution System (MDS) allows TOMAHAWK users the capability to transmit and receive mission data updates in a tactical environment. The ETEPP provides the TOMAHAWK user with command and control information needed to employ TOMAHAWK missions.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2001 ACCOMPLISHMENTS:

(U) ($1.750) Developed system updates to TOMAHAWK Command and Controls systems necessary for the employment of the Tactical TOMAHAWK missile.

R-1 SHOPPING LIST - Item No. 181

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204229N TOMAHAWK AND THEATER MISSION PLANNING CENTER	A1784 THEATER MISSION PLANNING CENTER

(U) B. PROGRAM CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	1.851	0.022	
(U) Adjustments from the FY 2002 President's Budget:	(0.101)	(0.022)	
(U) FY 2003 President's Budget:	1.750	0.000	

CHANGE SUMMARY EXPLANATION:

(U) Funding:

The FY 2001 decrease of $0.101 million consists of a $.061 million decrease for a Small Business Innovation Research Assessment and a $0.040 million decrease for reprioritization of requirements within the Navy.

The FY2002 decrease of $0.022 million consists of technical adjustment which moved funding from A1784 into A0545.

(U) Schedule: Not Applicable

(U) Technical: Not Applicable

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete	Total Cost
OPN BLI 525000 Surface Tomahawk Support Equipment	24.870								24.87

Related RDT&E,N: Not Applicable

R-1 SHOPPING LIST - Item No. 181

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204229N TOMAHAWK AND THEATER MISSION PLANNING CENTER	A1784 THEATER MISSION PLANNING CENTER

(U) D. ACQUISITION STRATEGY: The acquisition strategy for this project is to maintain contractual continuity to develop system updates to continue TMPC integration of New National Sensors and Software Architectural Enhancements.

(U) E. SCHEDULE PROFILE:

	FY 2001	FY 2002	FY 2003	TO COMPLETE
(U) Program Milestones	Annual Fleet Release			
(U) Engineering Milestones				
(U) T&E Milestones				
(U) Contract Milestones	TMPC APS			

R-1 SHOPPING LIST - Item No. 181

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0204229N TOMAHAWK AND THEATER MISSION PLANN			PROJECT NUMBER AND NAME A1784 THEATER MISSION PLANNING CENTER							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	C/FP	Boeing, St. Louis, MO	36.795								36.795	36.795
	SS/CPFF	GD/E, San Diego, CA	11.342								11.342	11.342
	Econ Act	NCCOSC, San Diego, CA	4.325								4.325	
		Misc. Items 1974-1997	34.940								34.940	
	C/CPFF	Lockheed, Bethesda, MD	1.283	1.300	11/00						2.583	2.583
	C/CPFF	MTL, Classified	1.060								1.060	1.060
	Econ Act	NSWC, Dahlgren	1.253								1.253	
Subtotal Product Development			90.998	1.300							92.298	
Remarks:												
Development Support Equipment	CPFF	SAIC, Arlington, VA	1.866								1.866	1.866
	UARC	APL, Laurel, MD	1.771	0.450	01/01						2.221	
Subtotal Support			3.637	0.450							4.087	
Remarks:												

R-1 SHOPPING LIST - Item No. 181

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0204229N TOMAHAWK AND THEATER MISSION PLANN			PROJECT NUMBER AND NAME A1784 THEATER MISION PLANNING CENTER						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Subtotal T&E												
Remarks:												
Management												
SBIR Assessment												
Subtotal Management												
Remarks:												
Total Cost			94.635	1.750							96.385	
Remarks:												

R-1 SHOPPING LIST - Item No. 181

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204311N
PROGRAM ELEMENT TITLE: Integrated Surveillance System

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 2001 ACTUALS	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
X0766 IUSS Detect/ Classif System	23,995	20,056	20,405	22,797	25,506	27,590	27,502	CONT.	CONT.
X0758 SURTASS	11,843	8,530						CONT.	CONT.
X9102 IUSS Mission Planning		6,740							
X9103 FDS		2,973							
TOTAL	35,838	38,299	20,405	22,797	25,506	27,590	27,502	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This Program Element (P.E.) comprises four projects - X0766, X0758, X9102 and X9103. Project X0766 provides for Integrated Undersea Surveillance Systems (IUSS) Research and Development Projects. Project X0758 is for the Surveillance Towed Array Sensor (SURTASS) development efforts. IUSS provides the Navy with its primary means of submarine detection both nuclear and diesel. The program has undergone a major transition from emphasis on maintaining a large dispersed surveillance force keyed to detection and tracking of submarines to a much smaller force that is effective against modern diesel and nuclear submarines in regional/littoral or broad ocean areas of interest. This transition preserves the ability to continue open ocean surveillance. Beginning in FY03, Project X0758 budget is being moved to Project X0766 line. Projects X9102 and X9103 are Congressional Plus Ups that support development efforts for IUSS.

(U) The IUSS Research and Development project (X0766) funds Fixed Surveillance Systems (FSS), which encompasses the Sound Surveillance System (SOSUS), the Surveillance Direction System (SDS), and the Fixed Distributed System (FDS), as well as SURTASS Low Frequency Active (LFA) developments. SOSUS processing sites have been converted to SDS/SSIPS (Shore Signal and Information Processing Segment) to significantly lower life cycle costs and enable system-wide consolidation. SURTASS LFA will provide an active adjunct capability for IUSS passive and tactical sensors to assist in countering the quieter diesel and nuclear threats of the 1990s and beyond. The LFA tasks are directed at detection of slow quiet threats in harsh littoral waters.

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204311N
PROGRAM ELEMENT TITLE: Integrated Surveillance System

(U) In order to continue with reductions in life cycle costs and continue with system-wide consolidation, a long-term goal is to develop a single IUSS processor based on NAVSEA's Acoustic Rapid COTS Insertion (ARCI) program. The IUSS Common processor will have the capability to process and display data from future underwater systems (such as the Advanced Deployable System (ADS) and FDS-C). The IUSS Common processor will also have the capability to replace the legacy systems (SSIPS, SDS, and SURTASS) as they reach end of life and require upgrading.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: Budget Activity 7: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing operational systems.

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204311N PROJECT NUMBER: X0766
PROGRAM ELEMENT TITLE: Integrated Surveillance System PROJECT TITLE: IUSS

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 2001 ACUTALS	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
X0766 IUSS Detect/Classif System									
TOTAL	23,995	20,056	20,405	22,797	25,506	27,590	27,502	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The SURTASS project comprises the mobile, tactical arm of the Integrated Undersea Surveillance System, providing long range detection and cueing for tactical weapons platforms against both diesel and nuclear powered submarines. SURTASS also provides the undersea surveillance necessary to support regional conflicts and sea-lane protection. SURTASS has experienced recent passive and active success against diesel submarines operating in shallow water. SURTASS is greatly reducing costs by consolidating logistics support, using Non-Developmental Items and commercial hardware, and increasing operator efficiency through computer aided detection and classification processing. SURTASS development efforts include: twin-line array processing, improved detection and classification/passive automation to counter quieter threats; additional signal processing and bi-static active capability; integrated active and passive operations; improved Battle Group support; and improved information processing. Functional improvements are delivered to the Fleet in software "Builds". Future builds will be based upon the Advanced Processor Build (APB) process begun by the NAVSEA Submarine USW program. APB-99 will be used to support an ARCI(I) Engineering Development Model (EDM) demonstration system, providing A-180R long-line processing only. APB-01 was used for the production ARCI(I) systems for all long-line arrays. APB-02 will provide Twin-line processing capabilities, and APB-03 will provide active processing capabilities. Additionally, each APB will introduce new capabilities into SURTASS systems including improved automation, normalizer techniques, adaptive beamforming, and display enhancements. SURTASS participates in the process by contributing algorithms for consideration, supplying peer group members for review of candidate algorithms, participating in test evolutions, and incorporating improved algorithms into operational systems. LFA will provide an active adjunct capability for IUSS passive and tactical sensors to counter the quieter diesel and nuclear threats of the 1990s and beyond. The LFA tasks are directed at detection of slow quiet threats in harsh littoral waters. Improvements include Twin-Line/LFA integration enhancements; advanced waveforms for littoral/shallow water operations including doppler sensitive waveforms; and processing algorithms to reduce clutter and reverberation false alarms in shallow water. Also includes Adaptive Beamforming; Integration of tactical decision aids for LFA monostatic and bistatic operation; integration of SURTASS active and passive information processing systems to provide contact association and geographic tracking; and common antisubmarine warfare (ASW) OMI and environmental processing. The LFA task includes development and testing of a compact LFA transmit source array for SWATH-P ships.

B. (U) PD18 is involved with the development and maintenance of various IUSS systems. These systems include FDS, FDS-C, SDS, SURTASS, and ADS. The near term objective is to obtain a common Operator Machine Interface (OMI) among currently fielded systems. The long-term goal is to develop a single IUSS processor baseline, with minor maintenance efforts continuing on fielded systems. The existing system architecture, signal processing, contract management, and reporting requirements will be evaluated as well as the requirements for future systems. The development of the IUSS processor will take advantage of automation advancement, array technology improvements, and IUSS, submarine, and surface USW system commonality.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2001 Accomplishments:

- (9,364) Developed fiber optic sensor technology for a long life all optical underwater surveillance system.
- (4,833) Developed/expanded the collaborative planning functionality of WeCAN to include other multi-mission warfare areas.
- (3,138) Continued design and development of software to transition IUSS to a common processing architecture(ARCI). Verify design and functionality via in lab demonstration testing and sea tests.
- (3,260) Continued LFA development for T-AGOS 23 and to improve performance in shallow water/littoral regions to support ARG operations. Planned LFA Cory shakedown tests to verify system operability and operator training.
- (1,200) Continued scientific research program to support operational deployment of LFA.
- (500) Continued integration of IUSS into the Fleet C4ISR architecture.
- (1,000) Conducted trade-off analysis for LLFA array, processing, array handling and ship modification.
- (700) Conducted trade-off and mission studies to explore networked ASW system concepts, investment alternatives and development of a community-wide strategy for common performance models.

2. (U) FY 2002 PLANS

- (1,887) FSS – Continue design and development of software and perform hardware evaluations to transition IUSS to a common processing architecture. Verify design and functionality via in lab demonstration testing.

- (1,866) LFA MSIII – Conduct T-23 development testing/Operational Testing (DT/OT) certification testing. Correct software issues uncovered during testing.

- (3,099) Common Acoustic Processor – Complete development of SURTASS ARCI(I) capability for all single line array types. Develop software for Twin-Line processing in the ARCI(I) architecture.

- (1,828) Surveillance System Integration – Continue integration of SURTASS ARCI(I) capability with IUSS legacy systems. Integrate future ARCI(I), Comms, and TDA improvements.

- (2,679) Active Acoustics – Continue implementation of a multi-year sea test program focused on CONOPS and the physics of shallow water. Develop improvements for LFA operations in shallow water, conduct analysis, simulations, and trade-off studies to define the optimum configuration of shallow water sources, including frequency diversity and power levels, source technology, array handling configurations/platforms. Continue sea test program to support system improvements and demonstrate/validate operational concepts.

- (1,200) LFA Environmentals – Continue environmental research on the effect of low frequency active sonar on marine mammals.

- (1,100) N74 ASW Study – Continue conducting trade-off and mission studies to explore networked ASW system concepts, investment alternatives and development of a community-wide strategy for common performance models.

- (200) ASWC4I – Continue performing engineering, analysis and trade-offs; conduct proof of concept testing to support IUSS integration into the Navy’s C4I architecture, including IT-21 implementation. Continue supporting IUSS C4I IPT. Coordinate the development of GCCS-M ASW Tactical Decision Aids (TDAs). Define ASWC4I system concepts, system interfaces and architecture.

- (250) System Engineering – Provide system level engineering across IUSS programs. Translate Fleet requests into system level design solutions.

- (5,947) WECAN – Expand capability of WECAN collaborative planning functionality to include other multi-mission warfare areas. Provide WECAN functionality to new ASW platforms.

3. (U) FY 2003 PLANS

- (2,944) FSS – Continue design and development of software and perform hardware evaluations to transition IUSS to a common processing architecture. Verify design and functionality via in lab demonstration testing. Efforts are site-specific development/integration to accommodate the new hardware.

- (1,825) LFA MSIII – Continue T-23 development testing/Operational Testing (DT/OT) certification testing. Correct software issues uncovered during testing.

- (3,066) Common Acoustic Processor – Continue software development for Twin-Line processing in the ARCI(I) architecture. Add APB improvements to single line ARCI(I) capability.

- (1,300) Surveillance System Integration – Continue integration of SURTASS ARCI(I) capability with IUSS legacy systems. Continue integration of future ARCI(I), Comms, and TDA improvements.

- (2,531) Active Acoustics – Continue implementation of a multi-year sea test program focused on CONOPS and the physics of shallow water. Continue development of improvements for LFA operations in shallow water, conduct analysis, simulations, and trade-off studies to define the optimum configuration of shallow water sources, including frequency diversity and power levels, source technology, array handling configurations/platforms. Continue sea test program to support system improvements and demonstrate/validate operational concepts.

- (600) LFA Environmentals – Continue environmental research on the effect of low frequency active sonar on marine mammals.

- (1,074) N74 ASW Study – Continue conducting trade-off and mission studies to explore networked ASW system concepts, investment alternatives and development of a community-wide strategy for common performance models.

- (200) ASWC4I – Continue performing engineering, analysis and trade-offs; conduct proof of concept testing to support IUSS integration into the Navy's C4I architecture, including IT-21 implementation. Continue supporting IUSS C4I IPT. Continue to coordinate the development of GCCS-M ASW Tactical Decision Aids (TDAs). Continue to define ASWC4I system concepts, system interfaces and architecture.

- (255) System Engineering – Continue to provide system level engineering across IUSS programs. Translate Fleet requests into system level design solutions.

- (1,500) Passive Processing – Develop algorithms and software for signal processing algorithms associated with unique SURTASS requirements and environments, in conjuction with the SPWG. Optimize processing and displays for specific threat missions to improve operator recognition. Participation in SDWG and related working groups (SPWG, COSG, DFWG, TEASG, etc.). Identification of open and closed IUSS data sets for conduct of APB Step 2 and Step 3 evaluations.

- (1,250) Sonar Automation – Develop automated tools to reduce operator workload caused by increased beam count and high clutter in shallow water. Develop algorithms and software for alerting operators to threat signals, monitoring of low priority beams and frequency space to support link management concepts, acoustic signature formation tuned to SURTASS environments and arrays, target passive ranging, auto tracking and reporting, and surface ship identification for decluttering, in conjunction with the AWG. Participation in the AWG and related APB efforts. Identification of open and closed IUSS data sets for conduct of APB Step 2 and Step 3 evaluations.

- (2,620) TB-29A/Twin-Line – Continue processing improvements to support TB-29A operations and expand array interoperability. Develop across platform telemetry architecture. Continue work to implement twin-line to long-line conversion capabilities, including processing and hardware changes.

- (1,240) Shore Processing – Continue incorporation of OMI Commonality Working group guidance. Continue development of Link Management functionality. Develop shore processing capability for TB-29A array and off-board sensors.

B. (U) PROGRAM CHANGE SUMMARY:

FY 2001: Section 8086 .7% Pro-Rata Reduction (-$176K), Congressional Plus-Up WECAN Tech to Other Warfare Areas and Domain (+$5,000K), Congressional Plus-Up Advanced Deployable System (+$9,500K), Government-Wide Rescission Issue 63334 (-$55K), Miscellaneous Navy Adjustments (-$148K), SBIR Assessment (-$522K), BTR CTO Synthetic Aperture Sonar (-$207K).

FY 2002: Congressional Plus-Up WECAN WEB CENTRIC ASW NET (+$6,000K), Section 8123 Management Reform Initiative (-$179K).

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204311N PROJECT NUMBER: X0766
PROGRAM ELEMENT TITLE: Integrated Surveillance System PROJECT TITLE: IUSS

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 2001 ACTUALS	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
OPN# 2225	0	0	2,000	7,000	7,000	0	0	CONT.	CONT.
OMN 1C3C	26,361	28,916	30,674	32,753	38,863	39,793	40,853	CONT.	CONT.
OPN# 2237	5,457	17,494	20,639	20,670	29,160	25,760	18,000	CONT.	CONT.

(U) RELATED RDT&E:
(U) PE 0204311N(Integrated Surveillance System)
(U) PE 0603785N(Combat Systems Oceanographic Performance Assessment)
(U) PE 0603747N(Undersea Warfare Advanced Technology)

D. (U) ACQUISITION STRATEGY:

	FY2001	FY2002	FY2003
Program Milestones			
Engineering Milestones	ARCI A-180R VARIANT 7/01	ARCI PBA/RDA VARIANT 7/02	ARCI TB29/TL ARCI TL VARIANT 7/03
T&E Milestone	SEA TEST ARCI A180R VARIANT 9/01		T-23 SEA TESTS DT-5/03 SEA TEST
Contract Milestones	T-AGOS 23 DLVRY 3/01	ARCI (I) PROCUREMENT	ARCI TB29/TL VARIANT 9/03

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204311N PROJECT NUMBER: X0766
PROGRAM ELEMENT TITLE: Integrated Surveillance System PROJECT TITLE: IUSS

Exhibit R-3 Cost Analysis (page 1)												
RDT&E/Budget Activity 7			PROGRAM ELEMENT: 0204311N							SURTASS x0766		
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value Of Contract
WeCAN	CPFF/ WX	ORINCON/Var	0	4,833	Apr-01	5,947	Apr-02			0	10,780	
FDS/AODS	CPFF/ WX	TBD	0	8,000	Sep-01	0				0	8,000	
IUSS Common Architecture/Surveillance System Integration/ System Eng.	CPFF	DSR/LM/ARL/Var	24,148	4,181	Nov-00	6,611	Oct-01	6,905	Nov-02	Cont.	Cont.	
Environmental Research	WR	ONR/Various	5,500	1,200	Nov-00	1,200	Nov-01	600	Nov-02	Cont.	Cont.	
LFA Improvements/LFA MS III/Active Acoustics	CPFF/ WX	RSC/LS/DSR/Var	80,555	1,515	Nov-00	2,432	Nov-01	2,206	Nov-02	Cont.	Cont.	
C4I Integration	CPFF/WX	Various	31,278	115	Nov-00	150	Nov-01	150	Nov-02	Cont.	Cont.	
N74 ASW Study	WX/PD	NUWC/APL	0	700	Nov-00	1,100	Nov-01	1,074	Nov-02	Cont.	Cont.	
Various	WX	Various	28,457	0		0					28,457	
Subtotal Product Development			169,938	20,544		17,440		10,935		Cont.	Cont.	

Remarks:
ORINCON= San Diego, CA
Litton= Woodland Hills, CA
RSC= Raytheon Systems Co. Portsmouth, RI
LM= Lockheed Martin, Manassas, VA
TRW=TRW Systems Div., San Diego, CA
L/S= Lockheed Sanders, Nashua, NH
DSR = Digital System Resources, Fairfax, VA

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204311N PROJECT NUMBER: X0766
PROGRAM ELEMENT TITLE: Integrated Surveillance System PROJECT TITLE: IUSS

Exhibit R-3 Cost Analysis (page 2)												
RDT&E/Budget Activity 7			PROGRAM ELEMENT: 0204311N						SURTASS x0766			
Cost Categories	Con-tract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
IUSS Common Arch. /Surveillance System Int.	WX	Various	990	0	N/A	0	N/A	160	Nov-02	Cont.	Cont.	
LFA Improvements/ LFA MSIII Active Acoustics	CPFF	TRW/Various	2,930	625	Nov-00	450	Nov-01	500	Nov-02	Cont.	Cont.	
C4ISR Integration	CPFF	TRW/Various	1,534	135	Nov-00	50	Nov-01	50	Nov-02	Cont.	Cont.	
FDS/AODS	WX	Various	0	1,216	May-01	0	N/A	0	N/A	0	1,216	
Subtotal Support			5,454	1,976		500		710		Cont.	Cont.	
Remarks												
IUSS Common Arch./ Surveillance System Integration	Var/WX	Various	651	0	N/A	400	Nov-01	500	Nov-02	Cont.	Cont.	
LFA Improvements/ LFA MSIII Active Acoustics	Var/WX	Various	2,975	1,325	Var.	1,566	Var.	1,500	Nov-02	Cont.	Cont.	
Subtotal T&E			3,626	1,325		1,966		2,000		Cont.	Cont.	
Remarks												
LFA Improvements/ C4ISR	Var/Wx	Various	1,437	150	Var.	150	Var.	150	Nov-02	Cont.	Cont.	
Subtotal Management			1,437	150		150		150		Cont.	Cont.	
Remarks												

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204311N PROJECT NUMBER: X0766
PROGRAM ELEMENT TITLE: Integrated Surveillance System PROJECT TITLE: IUSS

Exhibit R-3 Cost Analysis (page 3)												
RDT&E/Budget Activity 7		PROGRAM ELEMENT: 0204311N								SURTASS x0766		
Cost Categories	Con-tract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY 03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Passive Signal Processing/Sonar Automation	CPFF	APL/DSR						2,200	Nov-02	Cont.	Cont.	
Array Improvements	CPFF/WR	APL/SSC/ Var						1,950	Nov-02	Cont.	Cont.	
Processing Improvements/ Shore Processing	CPFF	ARL/DSR/ Var						809	Nov-02	Cont.	Cont.	
Subtotal Product Development								4,959		Cont	Cont	
Remarks: APL = APL/JHU DSR = Digital Systems Resources SSC = SPAWAR Systems Center ARL = ARL/UT												
Passive/Array Improvements	Var/Wx	Various						500	Nov-02	Cont.	Cont.	
Subtotal Support								500		Cont.	Cont.	
Remarks												
Passive/Array improvements	Var/WX	MISC.						1,050	Nov-02	Cont.	Cont.	
Subtotal T&E								1,050		Cont.	Cont.	
Remarks												
Passive/Array improvements	Var/WX	MISC.						101	Nov-02	Cont.	Cont	
Subtotal Mgmt								101		Cont	Cont	

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204311N PROJECT NUMBER: X0766
PROGRAM ELEMENT TITLE: Integrated Surveillance System PROJECT TITLE: IUSS

Remarks												
Total Cost			180,455	23,995		20,056		20,405		Cont	Cont	

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204311N PROJECT NUMBER: X0758
PROGRAM ELEMENT TITLE: Integrated Surveillance System PROJECT TITLE: SURTASS

(U) COST:(Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 2001 ACTUALS	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
X0758 SURTASS									
TOTAL	11,843	8,530							

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The SURTASS project comprises the mobile, tactical arm of the Integrated Undersea Surveillance System, providing long range detection and cueing for tactical weapons platforms against both diesel and nuclear powered submarines. SURTASS also provides the undersea surveillance necessary to support regional conflicts and sea-lane protection. SURTASS has experienced recent passive and active success against diesel submarines operating in shallow water. SURTASS is greatly reducing costs by consolidating logistics support, using Non-Developmental Items and commercial hardware, and increasing operator efficiency through computer aided detection and classification processing. SURTASS development efforts include: twin-line array processing, improved detection and classification/passive automation to counter quieter threats; additional signal processing and bi-static active capability; integrated active and passive operations; improved Battle Group support; and improved information processing. Functional improvements are delivered to the Fleet in software "Builds". Future builds will be based upon the Advanced Processor Build (APB) process begun by the NAVSEA Submarine USW program. APB-99 was used to support an ARCI(I) Engineering Development Model (EDM) demonstration system, providing A-180R long-line processing only. APB-01 will be used for the production ARCI(I) systems for all long-line arrays. APB-02 will provide Twin-line processing capabilities, and APB-03 will provide active processing capabilities. Additionally, each APB will introduce new capabilities into SURTASS systems including improved automation, normalizer techniques, adaptive beamforming, and display enhancements. SURTASS participates in the process by contributing algorithms for consideration, supplying peer group members for review of candidate algorithms, participating in test evolutions, and incorporating improved algorithms into operational systems. Project X0758 budget is being moved to Project X0766 beginning in FY03.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2001 ACCOMPLISHMENTS:

- (2,000) TB-29A/Twin-Line – Continued hardware and software development and processing improvements to support TB-29A operations and expand array interoperability.

- (2,000) Passive Processing & Automation – Continued Computer Aided Detection, Classification, and Tracking improvements, and development of automated tools to improve passive performance to support tactical operations and reduce operator workload in high clutter environments.

- (1,843) Bi-Static and Shore Processing – Continued software development to improve Bi-Static Processing in littoral/shallow water regions. Develop Link Management strategies for providing Bi-Static data to shore to reduce requirements for deploying Military Detachments (MILDETS).

- (6,000) Onboard Signal Processor – Began integration of SURTASS shipboard processing (ARCI) into a network-Centric architecture to extend SURTASS capabilities to other tactical platforms.

- (U) FY 2002 PLANS:

- (1,923) Passive Processing & Automation – Develop capability for monitoring low priority beams, improved acoustic signature formation, and target passive ranging. Continue development of software for processing off-board (autonomous) sensor data.

- (3,000) TB-29A/Twin-Line – Continue processing improvements to support TB-29A operations and expand array interoperability. Develop across platform telemetry architecture. Investigate concepts for conversion of TB-29A Twin-line capability into a Long-line capability.

- (1,807) Shore Processing – Continue incorporation of OMI Commonality Working group guidance. Continue development of Link Management functionality. Develop shore-processing capability for TB-29A array and off-board sensors.

- (1,800) SURTASS/LFA – Continue software development to improve processing in littoral/shallow water regions.

B. (U) PROGRAM CHANGE SUMMARY

FY 2001: Section 8086 .7% Pro-Rata Reduction (-$86K), Congressional Plus-Up ASW Combat Sys Int - Onboard Signal Processor (+$6,000K), Government-Wide Rescission Issue 68869 (-$27K), Miscellaneous Navy Adjustment (0), SBIR Assessment (-$155K), BTR CTO Synthetic Aperture Sonar (-$123K), Miscellaneous Navy Adjustments (-$252K).

FY 2002: Congressional Plus-Up SURTASS/LFA (+$2,800K), Section 8123 Management Reform Initiative (-$76K).

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 2001 ACTUALS	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
OMN 1C3C	26,361	28,916							
OPN 2237	5,457	17,494							

(U) RELATED RDT&E:

(U) PE 0204311N(Integrated Surveillance System)
(U) PE 0603785N(Combat Systems Oceanographic Performance Assessment)
(U) PE 0603747N(Undersea Warfare Advanced Technology)

D. (U) ACQUISITION STRATEGY:

	FY2001	FY2002
Program Milestones		
Engineering Milestones	ARCI A-180R VARIANT 7/01	ARCI PBA/RDA VARIANT 7/02
T&E Milestones	SEA TEST ARCI A180R VARIANT 9/01	SEA TEST ARCI PBA/RDA VARIANT 9/02
Contract Milestones		TB-29A/TL Procurement

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204311N PROJECT NUMBER: X0758
PROGRAM ELEMENT TITLE: Integrated Surveillance System PROJECT TITLE: SURTASS

Exhibit R-3 Cost Analysis (page 1)												
RDT&E/Budget Activity 7		PROGRAM ELEMENT: 0204311N						SURTASS x0758				
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY 03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Passive Signal Processing/Sonar Automation	CPFF	APL/DSR	22,952	2,000	Nov-00	1,900	Nov-01				26,852	
Array Improvements	CPFF/WR	APL/SSC/Var	16,451	1,075	Nov-00	2,075	Nov-01				19,601	
Processing Improvements/Shore Processing	CPFF	ARL/DSR/Var	24,588	1,433	Nov-00	1,374	Nov-01				27,395	
Various	Var/WX	Various	15,103	0	Nov-00	0	N/A				15,103	
Common Processor	WX	DSR	1,200	0	N/A	0	N/A				1,200	
Onboard Signal Processing	Var/WX	Various	0	5,675	May-01						5,675	
SURTASS/LFA	Var/WX	Various	0	0	N/A	1,700	May-02				1,700	
Subtotal Product Development			80,294	10,183		7,049					97,526	

Remarks:
APL = APL/JHU
RSC = Raytheon Systems Co.
SSC = SPAWAR Systems Center.
ARL = ARL/UT

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204311N PROJECT NUMBER: X0758
PROGRAM ELEMENT TITLE: Integrated Surveillance System PROJECT TITLE: SURTASS

Exhibit R-3 Cost Analysis (page 2)												
RDT&E/Budget Activity 7			PROGRAM ELEMENT: 0204311N							SURTASS x0758		
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY 03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Passive/Array Improvements	Var/Wx	Various	1,838	375	Nov-00	375	Nov-01				2,588	
Onboard Signal Processing	Var/Wx	Various	0	125	May-01						125	
SURTASS/LFA Processing	Var/WX	Various	0	0	N/A	100	May-02				100	
Subtotal Support			1,838	500		475					2,813	
Remarks												
Passive/Array improvements	Var/WX	MISC.	3,313	945	Nov-00	945	Nov-01				5,203	
Onboard Signal Processing	Var/WX	Various	0	100	May-01						100	
Subtotal T&E			3,313	1,045		945					5,303	
Remarks												
Passive/Array improvements	Var/WX	MISC.	522	15	Nov-00	61	Nov-01				598	
Onboard Signal Processing	Var/WX	Various	0	100	May-01						100	
Subtotal Management			522	115		61					698	
Remarks												
Total Cost			85,967	11,843		8,530					106,340	

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204311N PROJECT NUMBER: X0758
PROGRAM ELEMENT TITLE: Integrated Surveillance System PROJECT TITLE: SURTASS

Remarks
Beginning in FY03, Project X0758 budget is being moved to Project X0766 line.

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204311N PROJECT NUMBER: X9102
PROGRAM ELEMENT TITLE: Integrated Surveillance System PROJECT TITLE: IUSS

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 2001 ACUTALS	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
X9102 IUSS									
TOTAL		6,740							6,740

A. (U) IUSS provides the Navy with its primary means of submarine detection both nuclear and diesel. The program has undergone a major transition from emphasis on maintaining a large dispersed surveillance force keyed to detection and tracking of submarines to a much smaller force that is effective against modern diesel and nuclear submarines in regional/littoral or broad ocean areas of interest. This transition preserves the ability to continue open ocean surveillance. PD18 is involved with the development and upgrade of various IUSS systems. These systems include FDS, FDS-C, SDS, SURTASS, and ADS.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2001 Accomplishments: N/A

2. (U) FY 2002 PLANS: (6,740) Funds first phase of the Automated IUSS Mission Planning System. This effort builds on the work begun in the ADS program (PE 0604784N) to automate array laydown and cable routing plans and allows the mission planner the capability to rapidly update the plan. Functional requirements for FSS, ADS and SURTASS will be combined and prioritized with fleet input. Software will be developed as GCCS-M segments that are at least level 6 DII-COE compliant. Included is approximately 800K to collect environmental and physical data for an area of high fleet tactical interest for mission planner demonstration.

3. (U) FY 2003 PLANS: N/A

B. (U) PROGRAM CHANGE SUMMARY:

FY 2002: Congressional Plus-Up FDS (+$6,800), Section 8123: Management Reform Initiative (-60K)

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204311N PROJECT NUMBER: X9102
PROGRAM ELEMENT TITLE: Integrated Surveillance System PROJECT TITLE: IUSS

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

FY 2001 ACTUALS	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM

(U) RELATED RDT&E:
(U) PE 0204311N(Integrated Surveillance System)
(U) PE 0604784N(Advanced Deployable System)

D. (U) ACQUISITION STRATEGY:

	FY2001	FY2002	FY2003
Program Milestones			
Engineering Milestones		PDR 6/02 DDR 9/02	
T&E Milestone			
Contract Milestones			

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204311N PROJECT NUMBER: X9103
PROGRAM ELEMENT TITLE: Integrated Surveillance System PROJECT TITLE: FDS

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 2001 ACUTALS	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
X9103 FDS									
TOTAL	2,973								2,973

A. (U) IUSS provides the Navy with its primary means of submarine detection both nuclear and diesel. The program has undergone a major transition from emphasis on maintaining a large dispersed surveillance force keyed to detection and tracking of submarines to a much smaller force that is effective against modern diesel and nuclear submarines in regional/littoral or broad ocean areas of interest. This transition preserves the ability to continue open ocean surveillance. PD18 is involved with the development and upgrade of various IUSS systems. These systems include FDS, FDS-C, SDS, SURTASS, and ADS.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2001 Accomplishments: N/A
2. (U) FY 2002 PLANS:

   (2,973) Develop FSS system improvements to optimize performance. Development efforts include calibrated data collection, increased frequency capability and the impact on signal processing and array designs and increased bandwidth for signal processing. Continue development of an All-Optical underwater surveillance system.

B. (U) PROGRAM CHANGE SUMMARY:

FY 2002: Congressional Plus-Up FDS (+$3,000K), Section 8123: Management Reform Initiative (-27K)

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204311N PROJECT NUMBER: X9103
PROGRAM ELEMENT TITLE: Integrated Surveillance System PROJECT TITLE: FDS

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

FY 2001 ACTUALS	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM

(U) RELATED RDT&E:
(U) PE 0204311N(Integrated Surveillance System)
(U) PE 0604784N(Advanced Deployable System)

D. (U) ACQUISITION STRATEGY:

	FY2001	FY2002	FY2003
Program Milestones			
Engineering Milestones			
T&E Milestone			
Contract Milestones			

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA7**					R-1 ITEM NOMENCLATURE Amphibious Tactical Support Unit/0204413N					
COST ($ in Millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007		Cost to Complete	Total Cost
Total PE Cost	**11.604**	**22.316**	**6.352**	**7.160**	**0.207**	**0.305**	**0.332**		**0.000**	**48.276**
SACC AUTOMATION/21980	**0.000**	**4.557**	**4.376**	**5.925**	**0.207**	**0.305**	**0.332**		**0.000**	**15.702**
LCU REPLACEMENT AND DMFD/22231	**2.801**	**5.766**	**1.976**	**1.235**	**0.000**	**0.000**	**0.000**		**0.000**	**11.778**
AMPHIBIOUS LIGHTERAGE DEVELOP/Y2909	**8.803**	**9.515**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**		**0.000**	**18.318**
EXW TESTBED- SUPPORTING ARMS TECH INSERTION/29105		**2.478**								**2.478**
Quantity of RDT&E Articles										

A. Mission Description and Budget Item Justification: This Program Element supports various amphibious development and technology insertion efforts.

B. Project efforts are as follows:

SACC AUTOMATION: The Supporting Arms Coordination Center (SACC) initiative is to automate the communications and data flow that calls for fire and supporting arms for marine forces ashore.

LCU REPLACEMENT AND DMFD: This project supports development and procurement of a technologically advanced heavy lift utility landing craft to compliment the high speed, over-the-beach, ship-to-shore amphibious lift of the future. D-Day Mobile Fuel Demo (DFMD) -procurement of the 15K Bladder System.

AMPHIBIOUS LIGHTERAGE DEVELOPMENT: This project supports development and procurement of technology to develop a service-interoperable causeway lighterage system

EXW TESTBED: Expeditionary Warfare Testbed initiative is an effort utilizing a testbed to identify promising and emerging technologies which bring significant capability to the Expeditionary Warfighter. Key technologies will be earmarked for use in the development of a Command Operation Center-Afloat (COC-Afloat).

EXHIBIT R-2, RDT&E Project Justification	DATE: February 2002
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA7**	PROJECT NAME AND NUMBER Amphibious Tactical Support Unit/0204413N

B. Program Change Summary

	FY 2001	FY 2002	FY 2003
(U) FY 2002 President's Budget:	11.837	24.387	6.352
(U) Appropriated Value:	7.911	26.887	
(U) Adjustment to FY 2001/2002 Appropriated Value/ FY 2002 Presidents Budget:	-3.693	-4.571	
(U) FY 2003 PRES Budget Submit	11.604	22.316	6.352

- (U) Funding: FY01 Adjustments:
  - SBIR Assessment IAW 15 USC 638: -.167
  - Other Minor Adjustments: -.139
  - Project Change (Y2909): 3.999

FY02 Adjustments:
- Sec 8123 Management Reform: -.199
- Project Change (Y2909): -4.372

FY03 Adjustments:
- Project Change (Y2909)
- Other Minor Adjustments

- (U) Schedule: None
- (U) Technical: None

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E,N/BA7**	PROGRAM ELEMENT NAME AND NUMBER **Amphibious Tactical Spt Unit/0204413N**				PROJECT NAME AND NUMBER SACC Automation/21980					
COST ($ in Millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007		Cost to Complete	Total Cost
Project Cost	**0.000**	**4.557**	**4.376**	**5.925**	**0.207**	**0.305**	**0.332**		**0.000**	**15.702**
RDT&E Articles Qty										

A. Mission Description and Budget Item Justification: The Supporting Arms Coordination Center (SACC) initiative is to automate the communications and data flow that calls for fire and supporting arms for marine forces ashore. Currently the process is all manual and voice accomplished which, in the future, will be unresponsive to the needs of supported forces. Specifically, this project will develop the Naval Fire Control System and procure two engineering development ship sets for installation. It will also provide interface with the Advanced Field Artillery Tactical Data Systems (AFATDS) which brings the automated functions of supporting arms into the coherent tactical picture.

FY 2001 Accomplishments: Not Applicable
FY 2002 Plan:
- ($2.500) Engineering Development
- ($2.057) Risk Reduction Planning, Requirements Definition, Analysis of Alternatives (AOA), Performance Specifications Development, and Selection Criteria Establishment

FY2003: Plan:
- ($3.250) Demo Engineering Development Model
- ($1.126) Risk Reduction Analysis and Government Acceptance Test

B. Other Program Funding Summary

	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	To Complete	Total Cost
OPN Line 098100 Items Under $5M	0	343	344	870	866	871	866	Con't	Con't
O&MN Line, 1D3D, PEO EXW, PE 0708012N	0	316	343	1804	1787	1423	1428	Con't	Con't

The procurement items are for jam boxes, Automated Distribution Network Systems (ADNS), racks, workstations, and communications devices which will be permanent changeouts to the amphibious ships. These need to be in place in order to permit the connection of the automated SACC capabilities. The operations and maintenance efforts are for program, engineering, and technical support, logistics support and technical assists.

(U) Related RDT&E: Not Applicable

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NAME AND NUMBER	PROJECT NAME AND NUMBER
RDT&E,N/BA7	**Amphibious Tactical Spt Unit/0204413N**	SACC Automation/21980

C. Acquisition Strategy: This project is part of a collaboration between N85 and N86 to jointly develop and field a Naval Fire Control System (NFCS) that satisfies the requirements of naval and supported forces. The NFCS is to be an ACAT III program under N86 management.

D. Schedule Profile:

	FY 02	FY03	To Complete
Program Milestones	- Begin SACC engineering development - Address risk reduction planning and requirements development - Conduct Analysis of Alternatives - Begin and complete Performance Specifications	- Conduct Demo development model - Continue and complete risk reduction analysis - Conduct Government acceptance testing	- Enter Production and Deployment Phase
Engineering Milestones			
T&E Milestones			- IOT&E (FY04)
Contract Milestones			

Exhibit R-3 Cost Analysis (page 1) | DATE: **February 2002**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E,N** | PROGRAM ELEMENT: **Amphibious Tactical Spt Unit/0204413N** | PROJECT NAME AND NUMBER: SACC Automation/21980

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Engineering Development	TBD	TBD				2.500	12/01				2.500	
Primary Hardware Development										1.692	1.692	
Ancillary Hardware Development											0.000	
Systems Engineering *	*	*				1.048	11/01				1.048	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			0.000	0.000		3.548		0.000		1.692	5.240	

Remarks: Tasks include risk reduction planning, requirements development, conducting analysis of alternatives (AoA), and developing performance specifications.
Army - $0.200 (MIPR)
NSWC, DD - $0.400 (WR/PO) and CSS - $0.750 (WR/PO)
Norfolk Navy Shipyard - $0.300 (WR)

Development Support Equipment											0.000	
Software Development										1.800	1.800	
Training Development										0.100	0.100	
Integrated Logistics Support	WR/PO	NSWC, DD (CSS)				0.050	11/01	0.050		0.100	0.200	
Configuration Management											0.000	
Technical Data	WR/PO	NSWC, DD (CSS)				0.200	11/01	0.050		0.200	0.450	
GFE											0.000	
Subtotal Support			0.000	0.000		0.250		0.100		2.200	2.550	

Remarks: Preparation of ship alterations and tech drawings and accompanied support

Exhibit R-3 Cost Analysis (page 2) | DATE: **February 2002**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E,N** | PROGRAM ELEMENT: **Amphibious Tactical Spt Unit/0204413N** | PROJECT NAME AND NUMBER: SACC Automation/21980

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	TBD	TBD						3.250	11/02	0.700	3.950	
Operational Test & Evaluation											0.000	
Tooling											0.000	
GFE											0.000	
Subtotal T&E			0.000	0.000		0.000		3.250		0.700	3.950	
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support	WR/PO	NSWC,DD (CSS)				0.459	11/01	0.526	11/02	1.557	2.542	
Program Management Support	WR/PO	NSWC,DD (CSS)				0.290	11/01	0.490	10/02	0.600	1.380	
Travel						0.010	11/01	0.010	10/02	0.020	0.040	
Labor (Research Personnel)											0.000	
Overhead											0.000	
Subtotal Management			0.000	0.000		0.759		1.026		2.177	3.962	
Remarks:												
Total Cost			0.000	0.000		4.557		4.376		6.769	15.702	
Remarks:												

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E,N/BA7**	PROGRAM ELEMENT NAME AND NUMBER **Amphibious Tactical Spt Unit/0204413N**				PROJECT NAME AND NUMBER LCU Replacement and D-Day Mobile Fuel Demo,DMFD/22231					
COST ($ in Millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007		Cost to Complete	Total Cost
Project Cost	**2.801**	**5.766**	**1.976**	**1.235**	**0.000**	**0.000**	**0.000**		**0.000**	**11.778**
RDT&E Articles Qty										

A. Mission Description and Budget Item Justification: (LCU) - This project supports development and procurement of a technologically advanced heavy lift utility landing craft to compliment the high speed, over-the-beach, ship-to-shore amphibious lift of the future. D-Day Mobile Fuel Demo (DFMD) - This effort, in FY04 only ($1M), funds procurement of the 15K Bladder System currently being demonstrated by ONR/NFESC as an Advance Technology Demonstration (ATD). This will provide bulk fuel delivery capability by LCACs from distances exceeding hose capability.

FY 2001 Accomplishments (LCU and DFMD)
- ($0.389) Analysis of Alternatives (AoA).
- ($0.750) Commercial Designs (Concepts & Feasibility Designs).
- ($0.905) Government Studies & Technical support (e.g., Operational requirements, Hull forms, C4I, Navigation systems, Automation, Threat assessments).
- ($0.070) Shipboard interface & interoperability (Planning Yard support, TERP support).
- ($0.168) DoD 5000 Documentation & Program reviews (e.g., Acq. Strat, Requirements, ILS)
- ($0.170) Contracting & Evaluation support (e.g., BAA, SOW, TERP support)
- ($0.321) Programmatic Support (e.g., ABS, Mgnt plan, Schedules, briefs, Web site, travel, studies)
- ($0.028) Emergent requirements.

FY 2002 Plan (LCU and DFMD)
- ($0.210) Analysis of Alternatives (AoA)
- ($1.500) Commercial designs (Feasibility & Detail designs)
- ($0.762) Conduct enabling technologies R&D.
- ($0.750) Model testing & Simulations (e.g., beaching, seakeeping, survivability).
- ($1.185) Government Studies & Technical Support (e.g., Feasibility Studies, ORD Development, Threat analysis, C4I, ILS, & TERP support)
- ($0.490) Shipboard interface & interoperability (e.g., Planning Yard support, C4I/SPAWAR, Survivability Studies, Systems integration, TERP support)
- ($0.284) DoD 5000 Documentation & Program reviews (e.g., AS, ORD, APB, TEMP, ILSP)
- ($0.214) Contracting & Evaluation support (e.g., BAA, SOW, TERP support)
- ($0.371) Programmatic Support (e.g., ABS, Mgnt plan, Schedules, briefs, Web site, travel, studies)

FY 2003 Plan (LCU and DFMD)
- ($0.150) Complete commercial design studies
- ($0.575) Government Studies & Technical support (e.g., Performance Specification, Producibility Studies, RFP/SOW
- ($0.300) Shipboard interface and interoperability (e.g., C4I, Survivability, Systems integration, RFP/SOW)
- ($0.460) DoD 5000 Milestone Documentation & Program Reviews (e.g., APB,ORD, TEMP, Risk, Env/Saf/Hlth, ILA)
- ($0.121) Contracting & Evaluation support (e.g., Perf Specs, DRLs, RFP/SOW)
- ($0.370) Programmatic Support (e.g., ABS, Mgnt plan, Schedules, briefs, Web site, travel, studies)

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NAME AND NUMBER	PROJECT NAME AND NUMBER
RDT&E,N/BA7	**Amphibious Tactical Spt Unit/0204413N**	LCU Replacement and D-Day Mobile Fuel Demo,DMFD/22231

B. Other Program Funding Summary (LCU and DFMD)

	FY2001	FY2002	FY2003	FY2004	FY2005	FY 2006	FY 2007	To Complete	Total Cost
SCN Line 510000 Service Craft	0	0	0	0	59.007	60.076	61.299	Cont.	Cont.
OPN/603300/CL-25(NAVFAC)/0204413N				3.997	3.999	4.001			

(U) Related RDT&E: Not Applicable

C. Acquisition Strategy (LCU): Feasibility studies will be conducted to determine the best design to meet new Navy requirements for heavy lift utility landing craft and to support a performance specification that will be competitively awarded.

D. Schedule Profile (LCU):

	FY02	FY03	To Complete
Program Milestones	- Decision Review Milestone documentation	- Decision Review (MS I) - RFP Preparation - Source Selection plan	- Evaluation of feasibility of alternatives - Enabling technology studies
Engineering Milestones	- Execute design studies	- Performance Specification - Milestone B documentation	
T&E Milestones	- Begin and complete model testing		
Contract Milestones	- Completion of Analysis of Alternatives - Exercise Options for commercial specs		

Exhibit R-3 Cost Analysis (page 1) | DATE: **February 2002**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E,N/BA7**

PROGRAM ELEMENT: **Amphibious Tactical Spt Unit/0204413N**

PROJECT NAME AND NUMBER: LCU Replacement and D-Day Mobile Fuel Demo(DMFD)/22231

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development												
Ancillary Hardware Development												
Systems Engineering	WR	NSWC Bethesda, Md								0.200	0.200	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			0.000	0.000		0.000		0.000		0.200	0.200	

Remarks:

Development Support Equipment											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support										0.050	0.050	
Configuration Management											0.000	
Technical Data											0.000	
GFE											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.050	0.050	

Remarks:

Exhibit R-3 Cost Analysis (page 2) | DATE: **February 2002**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E,N** | PROGRAM ELEMENT: **Amphibious Tactical Spt Unit/0204413N** | PROJECT NAME AND NUMBER: LCU Replacement and D-Day Mobile Fuel Demo(DMFD)/22231

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NSWC Bethesda, Md				1.872	12/01	0.644	12/02		2.516	
Operational Test & Evaluation										0.050	0.050	
Tooling											0.000	
GFE											0.000	
Subtotal T&E			0.000	0.000		1.872		0.644		0.050	2.566	
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support	WR	NSWC Bethesda, Md		2.181	11/00	3.099	11/01	1.032	11/02	0.465	6.777	
Program Management Support	CPFF	various		0.600	11/00	0.745	11/01	0.250	11/02	0.420	2.015	
Travel				0.020	10/00	0.050	10/01	0.050	10/02	0.050	0.170	
Labor (Research Personnel)											0.000	
Overhead											0.000	
Subtotal Management			0.000	2.801		3.894		1.332		0.935	8.962	
Remarks:												
Total Cost			0.000	2.801		5.766		1.976		1.235	11.778	
Remarks:												

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E,N/BA7**	PROGRAM ELEMENT NAME AND NUMBER **Amphibious Tactical Spt Unit/0204413N**				PROJECT NAME AND NUMBER Amphibious Lighterage Development/Y2909					
COST ($ in Millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007		Cost to Complete	Total Cost
Project Cost	**8.803**	**9.515**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**		**0.000**	**18.318**
RDT&E Articles Qty										

A. Mission Description and Budget Item Justification: Joint Modular Lighterage System (JMLS Development) - This project supports development and procurement of technology to develop a service-interoperable causeway lighterage system with the US Army, capable of assembly and operation (in a loaded condition) through Sea State 3. Sea State 3 is defined as significant wave height of 3.5 feet to 5.0 feet per the Joint Logistics Over The Shore (JLOTS) Mission Need Statement. Due to US Army withdrawal from the JMLS program in FY01 and lack of funding support. Resource sponsor has decided to terminate the JMLS program after FY2002. The current project includes resolution of technical issues identified during Technical Evaluation and completion of all current design and development requirements for a program closeout.

FY2001 Accomplishments (JMLS Development):
- ($0.839) Complete Advanced Concept Technology Demonstration. Conduct Mulitary Utility Assessment (MUA).
- ($1.199) Engineering studies, engineering support to resolve technical issues.
- ($0.100) Program documentation including ORD and TEMP.
- ($1.998) Resolve Technical and Design issues identified during ACTD. Efforts include engineering tests.
- ($0.350) Throughput and ship interface studies.
- ($0.959) Specification development and contract support.
- ($3.358) Proof of Concept contract for design, manufacture, and test of 24' wide module.

FY 2002 Plan (JMLS Development):
- ($.500) Engineering studies, engineering support to resolve technical issues.
- ($0.050) Program documentation including ORD and TEMP.
- ($0.641) Resolve Technical and Design issues identified during ACTD.
- ($0.225) Throughput and ship interface studies.
- ($8.099) Proof of Concept contract for design, manufacture, and test of 24' wide module.

EXHIBIT R-2a, RDT&E Project Justification			DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E,N/BA7**	PROGRAM ELEMENT NAME AND NUMBER **Amphibious Tactical Spt Unit/0204413N**	PROJECT NAME AND NUMBER Amphibious Lighterage Development/Y2909	

B. Other Program Funding Summary (JMLS Development)

	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	To Complete	Total Cost
CESE Line 6033 Amphib Equip (OPN)(Reqmt)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

(U) Related RDT&E: n/a

C. Acquisition Strategy (JMLS): The T&E efforts for the JMLS ACTD was completed in FY01. Due to lack of funding during PR03, resource sponsor zero'd all procurement funds for JMLS program, resulting in termination of JMLS program after FY02. In FY02 JMLS will complete all existing design and development effort, including incorporation of connector technology developed during the ACTD into a wider 24' module and a Proof of Concept contract to design, manufacture, and test a new 24' wide module.

D. Schedule Proflie:

	FY02	FY03	To Complete
Program Milestones	- Mfg module prototype (24' module) - Test module prototype (24' module)		

Exhibit R-3 Cost Analysis (page 1)

DATE: **February 2002**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E,N/BA7**

PROGRAM ELEMENT: **Amphibious Tactical Spt Unit/0204413N**

PROJECT NAME AND NUMBER: Amphibious Lighterage Development/Y2909

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	SS/CPFF	ONR, NSCWCD		3.189	12/00	5.400	11/01			0.000	8.589	
Ancillary Hardware Development	SS/CPFF	NSWC, NFESC		0.250	12/00	0.450	11/01			0.000	0.700	
Systems Engineering	PO/WR	NSWC,CD, NFESC		2.318	10/00	0.700	11/01			0.000	3.018	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			0.000	5.757		6.550		0.000		0.000	12.307	

Remarks:

Development Support Equipment											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support										0.000	0.000	
Configuration Management											0.000	
Technical Data											0.000	
GFE											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	

Remarks:

Exhibit R-3 Cost Analysis (page 2) | DATE: **February 2002**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E,N** | PROGRAM ELEMENT: **Amphibious Tactical Spt Unit/0204413N** | PROJECT NAME AND NUMBER: Amphibious Lighterage Development/Y2909

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	PO/WR	NSWC,CD, NFESC		0.839	10/00	0.501	01/02			0.000	1.340	
Operational Test & Evaluation	PO/WR	NSWC,CD, NFESC				1.263	01/02			0.000	1.263	
Tooling											0.000	
GFE											0.000	
Subtotal T&E			0.000	0.839		1.764		0.000		0.000	2.603	
Remarks:												
Contractor Engineering Support	SS/CPFF	TBD		1.098	10/00	0.450	11/01				1.548	
Government Engineering Support	WR	NSWC Bethesda, Md		1.009	01/01	0.641	11/01				1.650	
Program Management Support	PO/WR	NSWC,CD, NFESC		0.100		0.110	11/01				0.210	
Travel	PO/WR			0.000		0.000					0.000	
Labor (Research Personnel)											0.000	
Overhead											0.000	
Subtotal Management			0.000	2.207		1.201		0.000		0.000	3.408	
Remarks:												
Total Cost			0.000	8.803		9.515		0.000		0.000	18.318	
Remarks:												

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E,N/BA7**	PROGRAM ELEMENT NAME AND NUMBER **Amphibious Tactical Spt Unit/0204413N**				PROJECT NAME AND NUMBER EXW Testbed- Supporting Arms Tech Insertion/21980					
COST ($ in Millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007		Cost to Complete	Total Cost
Project Cost	**0.000**	**2.478**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**		**0.000**	**2.478**
RDT&E Articles Qty										

A. Mission Description and Budget Item Justification: The Expeditionary Warfare Testbed initiative is an effort utilizing a testbed to identify promising and emerging technologies which bring significant capability to the Expeditionary Warfighter. Key technologies will be earmarked for use in the development of a Command Operation Center-Afloat (COC-Afloat). The COC Afloat will be designed to support warfighting concepts such as Operational Maneuver from the Sea and Ship to Objective Maneuver, both critical to the revised USMC Expeditionary Warfare Concept. Joint Forces will be used to test the equipment via major exercises, obtaining critical operator input for an Operation Requirements Document revalidation effort.

FY 2001 Accomplishments: Not Applicable
FY 2002 Plan:
- ($1.765) Engineering Development of Prototype Command Operation Center-Afloat. This will include testing Prototype during major Joint Exercises.
- ($0.713) Preliminary , Requirements Definition, Draft Command Operation Center-Afloat ORD and Initial Configuration Management Plans developed.

FY2003: Plan: Not Applicable

B. Other Program Funding Summary

	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	To Complete	Total Cost	
OPN Line	0	0	0	0	0	0	0	0	0	
O&MN Line	0	0	0	0	0	0	0	0	0	

(U) Related RDT&E: Not Applicable

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NAME AND NUMBER	PROJECT NAME AND NUMBER
RDT&E,N/BA7	**Amphibious Tactical Spt Unit/0204413N**	EXW Testbed- Supporting Arms Tech Insertion/21980

C. Acquisition Strategy: This project continues with the development of the N75 sponsored Expeditionary Warfare Testbed in order to identify for acquisition a highly functional and capable Command Operations Center for Expeditionary Warfare Ships. It is also an adjunct and continuation of the effort to automate the Supporting Arms Coordination Center aboard Amphibious ships and supplements the next phase of that acquisitions strategy.

D. Schedule Profile:

	FY 02	FY03	To Complete
Program Milestones	- Begin COC-Afloat engineering development - Participate in two Major Joint Exercise to obtain critical operator input - Revalidate ORD - Start Configuration Requirements		
Engineering Milestones	- Identify and obtain equipment		
T&E Milestones			
Contract Milestones			

Exhibit R-3 Cost Analysis (page 1) | DATE: **February 2002**

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT	PROJECT NAME AND NUMBER
RDT&E,N	**Amphibious Tactical Spt Unit/0204413N**	EXW Testbed- Supporting Arms Tech Insertion/21980

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Engineering Development	WR/PO	NSWC, DD (CSS)				0.990	02/02				0.990	
Primary Hardware Development											0.000	
Ancillary Hardware Development											0.000	
Systems Engineering	WR/PO	NSWC, DD (CSS)				0.060	02/02				0.060	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			0.000	0.000		1.050		0.000		0.000	1.050	

Remarks: Due to the location of the Expeditionary Warfare Testbed in Panama City, NSWC, DD (CSS) will be conducting a majority of the engineering effort in conjunction with the National Technical Alliance. Support from NSWC, DD (DL and DN) will be used for the experimentation portion and ORD development.

Development Support Equipment	TBD	National Technical Alliance				0.300	02/02				0.300	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management	WR/PO	NSWC, DD (CSS)				0.110	02/02				0.110	
Technical Data	WR/PO	NSWC, DD (CSS)				0.040	02/02				0.040	
GFE											0.000	
Subtotal Support			0.000	0.000		0.450		0.000		0.000	0.450	

Remarks: The National Technical Alliance was identified as a participant in the FY02 effort.

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E,N**		PROGRAM ELEMENT **Amphibious Tactical Spt Unit/0204413N**				PROJECT NAME AND NUMBER EXW Testbed- Supporting Arms Tech Insertion/21980						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	TBD	TBD				0.175	02/02				0.175	
Operational Test & Evaluation											0.000	
Tooling											0.000	
GFE											0.000	
Subtotal T&E			0.000	0.000		0.175		0.000		0.000	0.175	
Remarks:												
Contractor Engineering Support	TBD	TBD				0.385	02/02				0.385	
Government Engineering Support	WR/PO	NSWC,DD				0.060	02/02				0.060	
Program Management Support	WR/PO	NSWC,DD (CSS)				0.233	02/02				0.233	
Travel	TBD	NSWC, DD and Contractors				0.125					0.125	
Labor (Research Personnel)	WR/PO	NSWC,DD (CSS)									0.000	
Overhead											0.000	
Subtotal Management			0.000	0.000		0.803		0.000		0.000	0.803	
Remarks:												
Total Cost			0.000	0.000		2.478		0.000		0.000	2.478	
Remarks:												

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification									DATE: FEBRUARY 2002		
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7**						R-1 ITEM NOMENCLATURE 0204571N Consolidated Training Systems Development					
COST ($ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost	**280.823**		**30.146**	**25.233**	**31.421**	**36.718**	**30.396**	**23.573**	**24.753**	**Continuing**	**Continuing**
21427/22449** Surface Tactical Team Trainer (STTT)	**69.696**		**11.357**	**5.595**	**15.340**	**20.841**	**18.822**	**12.613**	**13.689**	**Continuing**	**Continuing**
22449 Shipboard Electronic Attack Training (SEAT)			**0.000**	**0.991**						**0.000**	**0.991**
S9106 Tactical Communications On-Board Trainer			**0.000**	**0.991**						**0.000**	**0.991**
S9107 Link On-Board Trainer			**0.000**	**0.991**						**0.000**	**0.991**
W0431 Tactical Aircrew Combat Training System (TACTS)	* **53.659**		**1.474**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**55.133**
W0604 Training Range and Instrumentation Development (TRIDS)			**1.521**	**3.570**	**3.141**	**2.936**	**2.524**	**2.611**	**2.705**	**Continuing**	**Continuing**
W1998 Joint Tactical Combat Training System (JTCTS)	**148.833**		**2.757**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**		**151.590**
W2124 Air Warfare Training Development (AWTD)			**2.006**	**1.887**	**2.115**	**2.163**	**1.832**	**1.887**	**1.907**	**Continuing**	**Continuing**
X1823 Training and Modeling Systems (TMS)	**8.635**		**11.031**	**11.208**	**10.825**	**10.778**	**7.218**	**6.462**	**6.452**	**Continuing**	**Continuing**
Quantity of RDT&E Articles **Not applicable**											

* This amount includes FY90- FY99.
**This amount includes a FY01 Congressional Add in FY 01 under PU 22449 for BFTT Windows NT

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:
The STTT will develop the Battle Force Tactical Training (BFTT) System to provide realistic Combat System team training including a means to link surface ships together for coordinated unit and Battle Group level training using Distributed Interactive Simulation (DIS) and High Level Architecture (HLA) protocols. The migration of BFTT software to Windows NT from UNIX OS is underway. BFTT developed the BFTT Electronic Warfare Trainer (BEWT) and applicable BFTT System software to provide EW operator and team training for Fleet EW Systems. The Congrressional adds initiate the development of the Electronic Attack training capability for BEWT and develops the Tactrical Communication software interfaces and the BFTT Link Stimulation control software.

TACTS provides real-time monitoring and post-exercise debrief of aircrews flying on instrumented training ranges. This system is the primary training tool used by the Naval Strike and Air Warfare Center and the Marine Aviation Weapons and Tactics Squadron.

The TRID program provides development of many range systems including range electronic warfare simulator, advanced weapons training systems, laser training systems, Large Area Tracking Range (LATR), combat training system improvements and shallow water range technology.

R-1 SHOPPING LIST - Item No. 184

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: **FEBRUARY 2002**
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY BA-7**	R-1 ITEM NOMENCLATURE 0204571N Consolidated Training Systems Development

JTCTS is planned to provide U.S. Navy fleet deployable instrumentation for at sea surface, subsurface, air training and tactics development, and fixed/transportable air range instrumentation for U.S. Navy and U.S. Air Force air training and tactics development. JTCTS incorporates the Defense Modeling and Simulation Office sponsored Distributed Interactive Simulation Protocol Data Unit for interoperability with Navy and other service live, virtual (simulators), and constructive (war games) simulations. JTCTS will initially deliver prototype hardware/software for a mobile/rangeless capability for a Carrier Air Wing 5 (CAG-5) after undergoing development/operational testing. It will further develop, test, and field fixed air range and fixed fleet range hardware/software in subsequent phases of the program. This summary reflects only the USN funding component of the JTCTS.

The AWTD program provides development of many aviation training systems including mission rehearsal simulation technologies, and the Aviation Training Technology Integration Facility (ATTIF).

The TMS encompasses the requirements analysis and software development associated with the Navy's Maritime Development Agent function as part of the Joint Simulation System (JSIMS). The BFTT will develop the BFTT Electronic Warfare Trainer (BEWT) and applicable BFTT system software to provide EW operator and team training for Fleet EW Systems.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

R-1 SHOPPING LIST - Item No. 184

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2002			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME Program Element (PE) No. and Name 0204571N CTSD					PROJECT NUMBER AND NAME 21429 Surface Tactical Team Trainer (STTT)/ 22449 SEAT/S9106 Tactical Comms OBT/S9107 LINK OBT					
COST ($ in Millions)	Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**N/A**	**10.553** **	**11.357** **	**8.568** ***	**15.340**	**20.841**	**18.822**	**12.613**	**13.689**	**Continuing**	**Continuing**
RDT&E Articles Qty											

**Includes Congressional Plus up funding for BFTT Windows NT.
***Includes Congressional Plus up funding for: 22449 SEAT; S9106 Tactical COMMS OBT; and S9107 LINK OBT.

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Battle Force Tactical Training (BFTT) Program provides realistic joint warfare training across the spectrum of armed conflict; realistic unit level team training in all warfare areas; a means to link ships together which are in different homeports for coordinated training; external stimulation of shipboard training systems; and simulation of non-shipboard forces. BFTT uses a distributed architecture, integrating existing training systems, and uses Distributed Interactive Simulation (DIS) protocols, with planned migration to High Level Architecture (HLA). BFTT provides ships' Commanding Officers and Battle Group/Battle Force Commanders with the ability to conduct coordinated realistic, high stress, combat system team training as an integral part of the Afloat Training Organization. BFTT provides a baseline capability/system that meets the Operational Requirements Document (ORD). Stimulator/Simulators (STIM/SIM) provides standardized Radio Frequency (RF), Intermediate Frequency (IF), and/or Digital injection into surface ship radars and fire control systems for training of shipboard operators/teams as part of the BFTT System. The BFTT Electronic Warfare Trainer (BEWT) effort provides embedded operator and team electronic emissions recognition training capability, integrated into BFTT. BFTT software is being migrated from UNIX/TAC to a Windows-NT/PC Operating System (OS). The Shipboard Electronic Attack Training (SEAT) effort initiates development of the active electronic countermeasures training capability to BEWT. The Tactical Communications On-Board Trainer effort modifies the tactical Link communications software to accept training data inputs. The Link On-Board Trainer effort modifies the BFTT operating software to provide control of the Link 4/10/16 Stimulator.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2001 PLANS:

- (U) ($2.584) BFTT - Continue development of Link software, developing/integrating new software capabilities and automating debrief products.
- (U) ($1.540) HLA - Continue conversion of the DIS protocol based software to the HLA mandated architecture for the Entity Motioning and Modeling portion of the BFTT software in accordance with DoD directives.
-(U) ($7.233) BFTT Windows NT - Complete migration of BFTT software elements to Windows-NT for UNIX Operating System (OS).

R-1 SHOPPING LIST - Item No. 184

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME Program Element (PE) No. and Name 0204571N CTSD	PROJECT NUMBER AND NAME 21429 Surface Tactical Team Trainer (STTT)/ 22449 SEAT/S9106 Tactical Comms OBT/S9107 LINK OBT

(U) PROGRAM ACCOMPLISHMENTS AND PLANS: CONTINUATION SHEET

2. FY 2002 PLANS:

- (U) ($3.869) BFTT - Completing development of data Link simulation software, develop/integrate new s/w capabilities and system interfaces, develop BG level Display and Debrief software.

- (U) ($1.674) HLA - Complete conversion of the BFTT software to the existing HLA Standards.

- (U) ($.052) MMTT - Software development for the Multi-Mission Team Trainer (MMTT).

- (U) ($.991) SEAT - Initiate development of the Shipboard Electronic Attack Training (SEAT) software for BEWT.

- (U) ($.991) Tactical Communications On-Board Trainer - Software development for tactical communications system to accept training inputs.

- (U) ($.991) Link On-Board Trainer - Software development for BFTT software control of Link Stimulator.

3. FY 2003 PLANS:

- (U) ($15.288) BFTT - Develop/integrate new software capabilities and system interfaces. Initiate development of Battle Group level Display and Debrief software. System/Communication Engineering & Management to include the following: TACDEW Replacement (SG&C/JSAF); Consistent Readiness Status Display; Slave Multiple Special Points; Automate Displays; Script Fly-to Points/Slaved & Auto Maneuvers; Integrate CMTpc; Add Air Corridors to BOPC; Add Airways to BOPC; Default Emitters ON; Inactive Entities for Rapid Entity Initiation; Provide SIPRNET Access for Scenario & Dbase Xfer; Pause DCM without Closing D/C File; Allow Effects of IREPS Data to be applied by TSSS; and Allow Effects of IREPS Data to be applied by BEWT.

- (U) ($.052) MMTT - Software development for the Multi-Mission Team Trainer (MMTT).

R-1 SHOPPING LIST - Item No. 184

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME Program Element (PE) No. and Name 0204571N CTSD	PROJECT NUMBER AND NAME 21429 Surface Tactical Team Trainer (STTT)/ 22449 SEAT/S9106 Tactical Comms OBT/S9107 LINK OBT

(U) B. PROGRAM CHANGE SUMMARY: (Show total funding, schedule, and technical changes for the program element that have occurred since the last President's submission.

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	11.450	5.593	5.625
(U) Appropriated Value:	11.784	8.593	0
(U) Adjustments to FY 2001/2002 Appropriated Value/ FY 2002 President's Budget:	-0.427	-0.025	9.715
(U) FY 2003 Pres Budget Submit:	11.357	8.568	15.340

CHANGE SUMMARY EXPLANATION:

(U) Funding: The net decrease of (-$.427M) in FY 2001 consists of minor pricing adjustments. FY 2002: The net decrease of (-$.025M)consists of minor pricing adjustments; a Congressional plus up under PU 22449 for Shipboard Electronic Attack Training (SEAT), Issue 67261, in the amount of +$1.0M; a Congressional plus-up under PU S9106, under Issue 67262, for the Tactical Communications On-Board Trainer in the amount of +$1.0M; and a Congressional plus up under PU S9107 for the Link On-Board Trainer in the amount of +$1.0M. The net increase of $9.715M in FY 2003 consists of the following: Issue 59085 for a BFTT Plus up in the amount of $4.380M; Issue 65365 for MMTT Plus up in the amount of $5.608M; and minor pricing adjustments of (-$.273M)

(U) Schedule: Not Applicable.

(U) Technical: Not Applicable.

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete
OPN 276200	24.318	40.145	9.554	10.447	23.711	22.795	9.336	CONT.

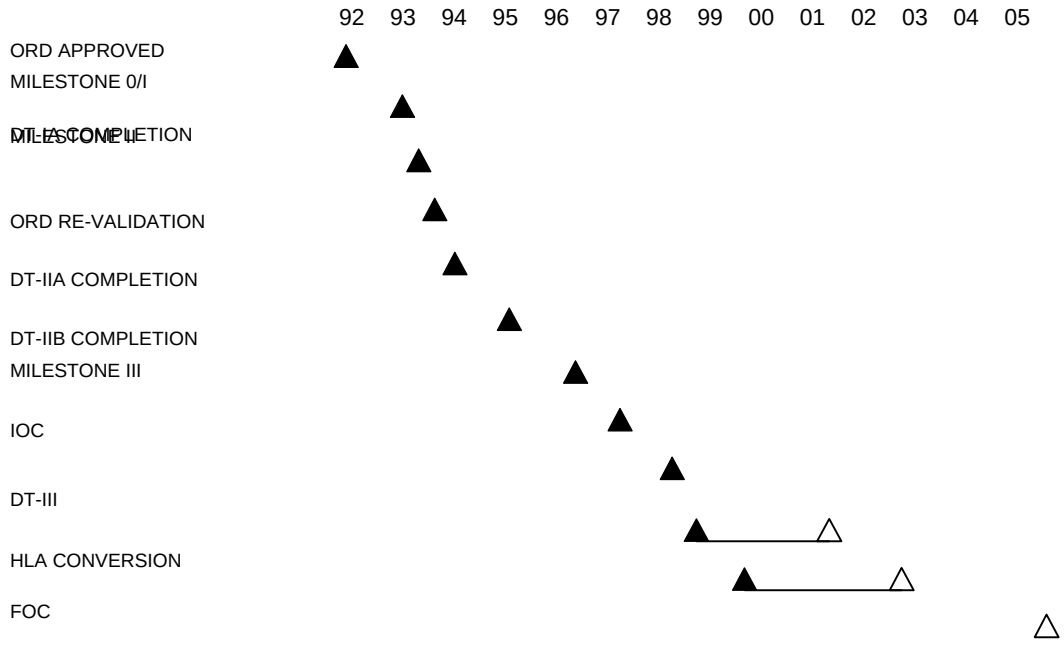
CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	Program Element (PE) No. and Name 0204571N CTSD	21427 Surface Tactical Team Trainer (STTT)

(U) D. ACQUISITION STRATEGY: * The BFTT Program is designated as an ACAT IV-M Program consisting of four (4) phases - Concept Exploration and Definition, Demonstration and Validation, Engineering and Manufacturing Development, and Production and Deployment.

(U) E. SCHEDULE PROFILE:

BFTT SCHEDULE



R-1 SHOPPING LIST - Item No. 184

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)

DATE: **February 2002**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-7**

PROGRAM ELEMENT: Program Element (PE) No. and Name 0204571N CTSD

PROJECT NUMBER AND NAME 21429 Surface Tactical Team Trainer (STTT)/ 22449 SEAT/S9106 Tactical Comms OBT/S9107 LINK OBT

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	*	AAI/MD & EWA/WV	11.514							0.000	11.514	11.514
Ancillary Hardware Development	WR	PHD/NSWC	1.000							0.000	1.000	1.000
Systems Engineering	**	PHD NSWC/NUWC/GSA	17.696	0.700	01/01	1.182	01/02	2.780	01/03	Continuing	Continuing	N/A
Licenses	WR/RCP	PHD NSWC	2.037	0.035	01/01	0.100	01/02	0.278	01/03	Continuing	Continuing	N/A
Tooling											0.000	
GFE			2.500							0.000	2.500	2.500
Award Fees			0.357							0.000	0.357	0.357
Subtotal Product Development			35.104	0.735		1.282		3.058		Continuing	Continuing	

Remarks:
* AAI Contract Award 3/98 CPIF; EWA Contract Award 6/98 CPFF
**WR/RCP/MIPR

Development Support Equipment											0.000	
Software Development	*	PHDNSWC/NAWCTSD/GSA/SP	26.210	10.187	01/01	5.661	01/02	7.764	01/03	Continuing	Continuing	N/A
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data	*	PHDNSWC/NAWCTSD/GSA	7.709	0.385	01/01	0.725	01/02	2.016	01/03	Continuing	Continuing	N/A
GFE											0.000	
Subtotal Support			33.919	10.572		6.386		9.780		Continuing	Continuing	

Remarks:

*WR/RCP/MIPR

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT Program Element (PE) No. and Name 0204571N CTSD				PROJECT NUMBER AND NAME 21429 Surface Tactical Team Trainer (STTT)/ 22449 SEAT/S9106 Tactical Comms OBT/S9107 LINK OBT						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	*	NSWC Crane/PHD/NAWC	3.257	0.050	01/01	0.400	01/02	1.112	01/03	Continuing	Continuing	N/A
Operational Test & Evaluation											0.000	
Tooling											0.000	
GFE											0.000	
Subtotal T&E			3.257	0.050		0.400		1.112		Continuing	Continuing	
Remarks: *WR/RCP/MIPR **NSWC PHD/Crane/NAWC TSD/GSA												
Contractor Engineering Support											0.000	
Government Engineering Support	*	NSWC PHD/GSA	2.183			0.500	01/02	1.390	01/03	Continuing	Continuing	N/A
Program Management Support											0.000	
Travel											0.000	
Labor (Research Personnel)											0.000	
Overhead											0.000	
Subtotal Management			2.183	0.000		0.500		1.390		Continuing	Continuing	
Remarks: *WR/RCP/MIPR												
Total Cost			74.463	11.357		8.568		15.340		Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST - Item No. 184

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification										DATE: **February 2002**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204571N Consolidated Training Systems Development					PROJECT NUMBER AND NAME W0431 Tactical Aircrew Combat Training System (TACTS)					
COST ($ in Millions)	Prior Year Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**53.659**		**1.474**								**55.133**

RDT&E Articles Qty

Project Units W0431, W0604, W1998, and W2124 do not match the budgets controls in FY 2001 due to the FY 2001 $8.8 million Congressional Recission in the FY 2002 Defense Appropriation Act. The FY 2001 amounts reflected actual obligations and projected expenditures for these programs.

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project develops new TACTS capabilities primarily through the integration of additional types of aircraft and weapons. This requires development of new aircraft interfaces, weapons and countermeasures simulations, and modifications to displays. Software is also developed to produce computer generated Electronic Warfare (EW) threats to enhance the system's ability to provide training in a realistic EW environment. Various other system performance improvements are also developed to make the system more effective and reliable.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2001 ACCOMPLISHMENTS:

- (U) ($.536) Weapons Integration - Completed development and integration of block 5.2 CCS software.

- (U) ($.718) Systems Upgrades – Commenced and completed development and integration of AIS A10 software.

- (U) ($.220) Studies/Analysis/T&E – Completed testing and acceptance of block 5.2 CCS software. Commenced and completed testing and acceptance of AIS A10 software.

2. FY 2002 PLANS: Not Applicable

3. FY 2003 PLANS: Not Applicable

R-1 SHOPPING LIST - Item No. 184

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204571N Consolidated Training Systems Development	PROJECT NUMBER AND NAME W0431 Tactical Aircrew Combat Training System (TACTS)

(U) B. PROGRAM CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY2002 President's Budget:	1.569		
(U) Adjustments from the FY2002 President's Budget:	-0.095		
(U) FY2003 President's Budget Submit:	1.474		

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY2001 net decrease of $.095 million reflects a $.058 million decrease for a reprioritization of requirements within the Navy and a $.037 million decrease for a Small Business Innovative Research Assessment.

(U) Schedule: Not Applicable

(U) Technical: Not Applicable

(U) C. OTHER PROGRAM FUNDING SUMMARY: Not Applicable

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204571N Consolidated Training Systems Development	PROJECT NUMBER AND NAME W0431 Tactical Aircrew Combat Training System (TACTS)	

(U) D. ACQUISITION STRATEGY: The TACTS program is a non-ACAT program. The integrated program teams that develop new TACTS capabilities include contractors whose products and services are obtained by means of competitive award, indefinite deliveries/indefinite quantity, and cost-type contracts. Individual delivery orders are awarded for specific development efforts.

(U) E. SCHEDULE PROFILE:

	FY 2001	FY 2002	FY 2003	TO COMPLETE
(U) Program Milestones				
(U) Engineering Milestones				
(U) T&E Milestones	2Q01/4Q01 A10 DT II 1Q01/4Q01 Blk 5.2 DTII			
(U) Contract Milestones				

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: **February 2002**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0204571N Consolidated Training Systems Development			PROJECT NUMBER AND NAME W0431 Tactical Aircrew Combat Training System (TACTS)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Systems/Software Development	Various	Various	34.982	1.130	1Q/01						36.112	
Subtotal Product Development			34.982	1.130							36.112	
Remarks:												
Software Development (Misc. <$1M)	Various	Various	3.695	0.104	1Q/01						3.799	
Subtotal Support			3.695	0.104							3.799	
Remarks:												

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0204571N Consolidated Training Systems Development			PROJECT NUMBER AND NAME W0431 Tactical Aircrew Combat Training System (TACTS)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	Various	Various	14.982	0.220	1Q/01						15.202	
(Misc. <$1M)												
Subtotal T&E			14.982	0.220							15.202	
Remarks:												
Travel				0.020	1Q/01						0.020	
Subtotal Management				0.020							0.020	
Remarks:												
Total Cost			53.659	1.474							55.133	
Remarks:												

R-1 SHOPPING LIST - Item No. 184

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204571N Consolidated Training Systems Development					PROJECT NUMBER AND NAME W0604 Training Range and Instrumentation Development (TRID)					
COST ($ in Millions)	Prior Year Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost			**1.521**	**3.570**	**3.141**	**2.936**	**2.524**	**2.611**	**2.705**	**Continuing**	**Continuing**
RDT&E Articles Qty											

Project Units W0431, W0604, W1998, and W2124 do not match the budgets controls in FY 2001 due to the FY 2001 $8.8 million Congressional Recission in the FY 2002 Defense Appropriation Act. The FY 2001 amounts reflected actual obligations and projected expenditures for these programs.

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project develops specialized instrumentation systems for fleet readiness training while minimizing life cycle costs. Tasks include development of the following: electronic warfare simulators and associated subsystems, target control systems, Large Area Tracking Range (LATR) improvements, combat training systems improvements, underwater technology, ranges interoperability and information architecture, shallow water range activity which includes establishment of capability at Pacific Missile Range Facility Shallow Water Training Range (PMRF SWTR) and assorted Advanced Weapons Training Systems (AWTS), such as Imaging Weapons Training System (IWTS), Remote Strafe Scoring System (RSSS), and weapon and countermeasure simulations for use with various range training systems.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2001 ACCOMPLISHMENTS:

- (U) ($.598) Completed integration of LATR Block 3.0 software upgrade. Commenced development of Block 4.0 software upgrade. Continued aircraft integration requirements analyses, prototype development and testing, and developing LATR system hardware upgrades.

- (U) ($.105) Developed and integrated platform interface improvements for combat training systems.

- (U) ($.310) Developed and integrated display system improvements for combat training systems.

- (U) ($.336) Developed and integrated new weapons training capabilities for combat training systems.

- (U) ($.172) Studied platform interfaces and methods for joint use of frequencies.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204571N Consolidated Training Systems Development	PROJECT NUMBER AND NAME W0604 Training Range and Instrumentation Development (TRID)

2. FY 2002 PLANS:

-(U) ($.890) Continue development of Block 4.0 software upgrade, analysis of range integration requirements, and development of hardware upgrades for the LATR system. Redesign, integrate and test modules to eliminate obsolete components with completion of the LATR power conditioner.

- (U) ($1.182) Develop additional training capabilities for the Control and Computational Subsystem (CCS).

- (U) ($.637) Develop additional training capabilities for the Personal Computer Advanced Display and Debriefing Subsystem (PCADDS).

- (U) ($.510) Develop a formalized interface between the CCS and the LATR.

- (U) ($.243) Analyze existing range instrumentation to determine where technology upgrades are needed to ensure that training ranges are able to support readiness objectives.

- (U) ($.108) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15USC 638.

3. FY 2003 PLANS:

- (U) ($.865) Complete operational test and evaluation, and integration of Block 4.0 software upgrade for LATR system. Continue development, test and integration of hardware and software upgrades. Continue redesign, integrate and test modules to eliminate obsolete components with completion of the design integration and test of the Advance Digital Interface Unit and GPS receiver. Perform security analysis of upgraded LATR ground system for system certification and accreditation.

- (U) ($1.096) Continue development of additional training capabilities for the Control and Computational Subsystem (CCS). Complete CCS Block 6.0 upgrade.

- (U) ($.580) Complete development of an interface between the CCS and the LATR.

- (U) ($.600) Continue analysis of existing range instrumentation to determine where technology upgrades are needed to ensure that training ranges are able to support readiness objectives.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204571N Consolidated Training Systems Development	W0604 Training Range and Instrumentation Development (TRID)

(U) B. PROGRAM CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY2002 President's Budget:	1.741	3.600	
(U) Adjustments from the FY2002 President's Budget:	-0.220	-0.030	
(U) FY2003 President's Budget Submit:	1.521	3.570	3.141

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2001 net decrease of $.220 million reflects a $.185 million decrease for a reprioritization of requirements within the Navy and a $.035 million decrease for a Small Business Innovative Research Assessment. The FY 2002 net decrease of $.030 million reflects a $.032 million decrease for an undistributed congressional reduction offset by a $.002 million increase in minor price adjustments.

(U) Schedule: The following milestones have been added, changed or deleted due to better reflect program status:

ADDED:

CCS Blk 5.3 Upgrade IOC 4Q/02	LATR Recert./Acc. IOC 4Q/04	CCS Blk 6.0 Upgrade IOC 4Q/03	
PCADDS IOC 4Q/02	LATR Multi-GIS OT&E 2Q/02	LATR ADIU OT&E 4Q/03	CCS/LATR Interface IOC 4Q/03
LATR GPS Receiver OT&E 4Q/02	CCS/LATR HLA IOC 4Q/03	LATR Power Coniditioner OT&E 3Q/02	

CHANGED:

From:	To:
Block 4.0 LATR 2Q/03	Block 4.0 LATR 4Q/03
LATR Multi-GIS OT&E 2Q/02	LATR Multi-GIS OT&E 3Q/02
LATR GPS Receiver OT&E 4Q/02	LATR GPS Receiver OT&E 2Q/03

(U) Technical: Not Applicable

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete
Related OPN:	1.040	1.650	0.000	0.000	0.000	0.000	0.000	Cont.

Related RDT&E: Not Applicable

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204571N Consolidated Training Systems Development	PROJECT NUMBER AND NAME W0604 Training Range and Instrumentation Development (TRID)

(U) D. ACQUISITION STRATEGY: The TRID program is a non-ACAT program. The integrated program teams that develop new TRID capabilities include contractors whose products and services are obtained by means of competitive award, indefinite deliveries/indefinite quantity (IDIQ), and cost-type contracts. Individual delivery orders are awarded for specific development efforts.

(U) E. SCHEDULE PROFILE:

	FY 2001	FY 2002	FY 2003	TO COMPLETE
(U) Program Milestones	1Q/01 Block3.0 LATR Upgrade IOC	4Q/02 CCS Block 5.3 Upgrade IOC 4Q/02 PCADDS IOC	4Q/03 Block 4.0 LATR Upgrade IOC 4Q/03 CCS/LATR Interface IOC 4Q/03 CCS Block 6.0 IOC	4Q/04 LATR Recert./Acc IOC
(U) Engineering Milestones				
(U) T&E Milestones		3Q/02 LATR Multi-GIS OT&E 3Q/02 LATR Power Conditioner OT&E	1Q/03 Block 4.0 LATR Upgrade DT III 4Q/03 LATR Advanced Digital Interface Unit (ADIU) OT&E 2Q/03 LATR GPS Recv. OT&E	
(U) Contract Milestones				

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0204571N Consolidated Training Systems Development			PROJECT NUMBER AND NAME W0604 Training Range and Instrumentation Development (TRID)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Systems Engineering and Software	Various	Various	79.890	1.186	1Q/01	2.224	1Q/02	2.003	1Q/03	Continuing	Continuing	
Development (Misc. < $1M)												
Subtotal Product Development			79.890	1.186		2.224		2.003		Continuing	Continuing	
Remarks:												
Development Support (Misc. <$1M)	Various	Various	5.898	0.302	1Q/01	0.585	1Q/02	0.425	1Q/03	Continuing	Continuing	
Subtotal Support			5.898	0.302		0.585		0.425		Continuing	Continuing	
Remarks:												

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0204571N Consolidated Training Systems Development			PROJECT NUMBER AND NAME W0604 Training Range and Instrumentation Development (TRID)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	Various	Various	3.638			0.606	1Q/02	0.589	1Q/03	Continuing	Continuing	
(Misc. <$1M)												
Subtotal T&E			3.638			0.606		0.589		Continuing	Continuing	
Remarks:												
Mangement Support	WX	NAWCAD Patuxent River	1.641	0.033	1Q/01	0.047	1Q/02	0.124	1Q/03	Continuing	Continuing	
SBIR Assessment						0.108					0.108	
Subtotal Management			1.641	0.033		0.155		0.124		Continuing	Continuing	
Remarks:												
Total Cost			91.067	1.521		3.570		3.141		Continuing	Continuing	
Remarks:												

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204571N/Consolidated Training Systems Development					PROJECT NUMBER AND NAME W2124/Air Warfare Training Development					
COST ($ in Millions)	Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost			**2.006**	**1.887**	**2.115**	**2.163**	**1.832**	**1.856**	**1.887**	**Continuing**	**Continuing**
RDT&E Articles Qty Not applicable											

Project Units W0431, W0604, W1998, and W2124 do not match the budgets controls in FY 2001 due to the FY 2001 $8.8 million Congressional Recission in the FY 2002 Defense Appropriation Act. The FY 2001 amounts reflected actual obligations and projected expenditures for these programs.

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:
This project develops new training system technologies for use in naval aviation. Products from this effort directly support the Marine Corps Aviation Simulation Master Plan, and will support the development and design of future naval aviation training/mission rehearsal systems. Tasks include: 1) Advanced training systems development to provide for transportable, modular, High Level Architecture (HLA) compliant, high fidelity mission rehearsal capabilities. Mission rehearsal is defined as the practice of planned tasks and functions critical to mission success using a true-to-life, interactive representation of the expected operating environment. Technologies to be developed and integrated include: helmet mounted and/or flat panel displays, photographic quality image generation, advanced environmental effects models, radar/infra-red/electro-optic and acoustic sensor simulations; and 2) the Aviation Training Technology Integration Facility (ATTIF), which is a man-in-the-loop testbed for the integration of software, hardware, and networked systems. ATTIF will include a HLA node for participation in fleet exercise synthetic battlespace. This ATTIF capability provides a window to fleet aviators for critical comment, evaluation, and fine tuning of new and innovative training technology before it is fielded.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2001 ACCOMPLISHMENTS:

- (U) ($.480) Demonstrated forward looking infrared (FLIR) sensor, water NVD effects, and integration of night vision training system (NVTS) with a PC IG.
- (U) ($.180) Continued to analyze and integrate performance specifications for modular weapons systems/deployable simulator systems.
- (U) ($.812) Analyzed, developed, integrated (ATTIF) modular architecture components for threat generation, instructor operating station (IOS), visuals, E-2C station, and intelligent synthetic forces.
- (U) ($.534) Integrated (ATTIF) and demonstrated low-cost/PC-based technologies.

2. FY 2002 PLANS:

- (U) ($.610) Analyze, develop, and integrate (ATTIF) modular architecture components for intelligent wingman, E-2C avionics, intelligent agents, F/A-18 OFP and weapon systems.
- (U) ($.430) Integrate FLIR sensor simulation with sensor host.
- (U) ($.127) Demonstrate (ATTIF) low-cost training and Mission rehearsal configurations, while maintaining or increasing fidelity.
- (U) ($.385) Develop applications for texture storage and PC based visual system technologies.
- (U) ($.278) Upgrade common IOS to the Joint Mission Planning System (JMPS) version.
- (U) ($.057) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204571N/Consolidated Training Systems Development	W2124/Air Warfare Training Development

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

4. FY 2003 PLANS:

- (U) ($.146) Demonstrate (ATTIF) low-cost training and mission rehearsal configurations and evaluate medium fidelity cockpits.
- (U) ($.680) Analyze, develop, and integrate (ATTIF) modular architecture components for F/A-18 cockpit avionics, intelligent wingman, E-2C platform, and intelligent synthetic forces.
- (U) ($.481) Demonstrate ability to input variables that affect FLIR imagery, analyze mission rehearsal database interoperability, and tool requirements.
- (U) ($.808) Develop applications for real-time shadows on PC video cards and a software only visual application, that requires no graphics hardware acceleration to implement simulation features.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204571N/Consolidated Training Systems Development	W2124/Air Warfare Training Development

(U) B. PROGRAM CHANGE SUMMARY:

	FY2001	FY2002	FY 2003
(U) FY 2002 President's Budget:	2.134	1.904	
(U) Adjustments from the President's Budget:	-0.128	-0.017	
(U) FY 2003 President's Budget Submit:	2.006	1.887	2.115

CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 2001 adjustment of -$.128 reflects a decrease of -$.094 for reprioritization of requirements within the Navy and a decrease of -$.034 million for a Small Business Innovative Research Assessment (SBIR).

(U) Funding: FY 2002 adjustment of -$.017 reflects a decrese for an undistributed congressional reduction.

(U) Schedule: Not Applicable

(U) Technical: Not Applicable

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete
APN Line 51 BA-7 (47C2) Common Ground Equipment (USMC Aviation Simulation Master Plan)	24.778	0	20.496	0	0	0	0	0

Related RDT&E

(U) P.E. 0603707N, Project #R1773, Sub-Project Title: Transportable Strike Assault Rehearsal System (T-STARS)

(U)P.E. 0604245N, Project #H2279, Sub-Project Title: USMC H-1 Upgrades

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204571N/Consolidated Training Systems Development	PROJECT NUMBER AND NAME W2124/Air Warfare Training Development	

(U) D. ACQUISITION STRATEGY:

(U) E. SCHEDULE PROFILE:

	FY 2001	FY 2002	FY 2003	TO COMPLETE
(U) Program Milestones				
(U) Engineering Milestones	Modular architecture for common IOS, E-2C station, visuals (4Q) Modular architecture = reconfigurable	Modular architecture for avionics, intelligent forces (4Q)	Modular architecture for cockpit avionics. (4Q)	
(U) T&E Milestones	Modular architecture components integration and test for I/ITSEC. (1Q)	Modular architecture components integration and test. (2Q)	Modular architecture components integration & test (2Q)	Modular architecture components integration & test (FY04, 2Q)
(U) Contract Milestones				

R-1 SHOPPING LIST - Item No. 184

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)											DATE: **February 2002**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0204571N/Consolidated Training Systems Development			PROJECT NUMBER AND NAME W2124/Air Warfare Training Development						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Systems Engineering	MIPR	Air Force Research Lab		0.415	01/01	0.430	02/02	0.481	01/03	Continuing	Continuing	
Systems Engineering	WX & WR	NAWCTSD, NAMRL		0.813	01/01	0.674	02/02	0.808	01/03	Continuing	Continuing	
Award Fees												
Subtotal Product Development				1.228		1.104		1.289		Continuing	Continuing	
Remarks:												
Trainer Development Support	FP/C	NAWC-AD		0.110	12/00	0.120	02/02	0.130	12/02	Continuing	Continuing	
Subtotal Support				0.110		0.120		0.130		Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST - Item No. 184

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)											DATE: **February 2002**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0204571N/Consolidated Training Systems Development			PROJECT NUMBER AND NAME W2124/Air Warfare Training Development						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX	NAWC-AD		0.637	01/01	0.579	01/02	0.660	01/03	Continuing	Continuing	
Subtotal T&E				0.637		0.579		0.660		Continuing	Continuing	
Remarks:												
Travel	WX	NAWC-AD		0.031	12/00	0.027	01/02	0.036	12/02	Continuing	Continuing	
SBIR Assessment						0.057					0.057	
Subtotal Management				0.031		0.084		0.036		Continuing	Continuing	
Remarks:												
Total Cost				2.006		1.887		2.115		Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST - Item No. 184

CLASSIFICATION:

EXHIBIT R-2a, RDT&E,N Project Justification						DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204571N/Consolidated Training Systems Development					PROJECT NUMBER AND NAME X1823/Training & Modeling Systems (TMS)			
COST ($ in Millions)	ACTUAL FY 2001	ESTIMATE FY 2002	ESTIMATE FY 2003	ESTIMATE FY 2004	ESTIMATE FY 2005	ESTIMATE FY 2006	ESTIMATE FY 2007	Cost to Complete	Total Program
Project Cost	**11.031**	**11.208**	**10.825**	**10.778**	**7.218**	**6.462**	**6.452**	**Continuing**	**Continuing**
RDT&E Articles Qty									

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The employment of naval forces in a multi-dimensional warfare environment is a complex operational problem. To counter the threat expected in hostile environments, naval officer training must be provided for all mission areas on a real-time basis at the Battle Force/Group level. This training must focus on tactical decision-making, tactics development/evaluation, and operational planning/execution. Shore-based classroom training and at-sea exercises have historically satisfied the Battle Group tactical training requirement. However, the effectiveness of this approach to training was reduced by the lack of a real-time decision-making environment during shore-based training and the reduction in number and scope of at-sea exercises. This requirement is fulfilled by the Joint Simulation System (JSIMS), which will replace the Enhanced Naval Warfare Gaming System (ENWGS), a legacy modeling and simulation training system.

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Joint Simulation System (JSIMS) will replace ENWGS and provide expanded functionality. The mission of JSIMS is to provide a readily available, operationally valid synthetic environment for the Commanders-in-Chief (CINCs), their components, other Joint organizations and the Services to: Jointly train, educate, develop doctrine and tactics, formulate and assess operational plans, assess warfighting situations, define operational requirements, and provide operational inputs to the acquisition process. In short, JSIMS will provide not only an improved certified capability for inter-Service operability but also an enhanced Joint Battle Staff training capability for the warfighting CINCs. All service Executive Agents (EAs) and Development Agents (DAs) are required to contribute to the initial population of the JSIMS architecture with facilities, services and tools, to meet an Initial Operational Capability (IOC) for Joint Task Force (JTF) training of no later than March 2003. In keeping with the premise that the Services/components are best able to define their own capabilities and functionality, the JSIMS Alliance Executive Office (AEO) is working in concert with the Services to import Service-provided functionality such as land, air, and naval and littoral warfare to JSIMS. The AEO will integrate these functionalities for use by Joint Army/Marine/Navy/Air Force exercise. JSIMS development is incremental.

In June 1994 the Services and Director Joint Program Office signed a Memorandum of Agreement (MOA) to establish JSIMS, a critical next-generation Modeling and Simulation (M&S) system. The long-term goal of the agreement is to integrate the range of missions of the Armed Forces within a common framework. That framework provides a balanced melding of live, virtual and constructive M&S representations, with Command, Control, Communications, Computers and Intelligence (C4I) fully supported, and interfaces using real-world equipment. As the Maritime Warfare EA, OPNAV N7, on 29 August 1995, assigned NAVSEA as the JSIMS Maritime Development Agent (DA). The objective of the JSIMS Maritime portion of the JSIMS Program is to train at all levels of command, in all warfare areas, including joint and service specific training. JSIMS Maritime is developing the Maritime Mission Space Objects for the JSIMS Program, as well as selected portions of the core infrastructure and services to be determined when the Joint Object Model is partitioned. JSIMS was transferred from NAVSEA to SPAWAR PD13 at the beginning of FY 1999. Due to a reorganization at SPAWAR, the JSIMS-M Program now resides in PD15. On 16 December 1999, USD (AT&L) published a memorandum directing that JSIMS be reorganized per the recommendations made by the JSIMS Senior Review Board. These recommendations were detailed in a 19 November 1999 Senior Review Board memorandum. Specifically, JSIMS was directed to convert system architecture to the High-Level Architecture (HLA) standard, establish a JSIMS Alliance Executive Office, develop a new Acquisition Program Baseline (APB), and transfer Program Executive Office (PEO) responsibilities from Air Force to Army. USD (AT&L) has also designated JSIMS as an ACAT-1D program.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E,N Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204571N/Consolidated Training Systems Development	PROJECT NUMBER AND NAME X1823/Training & Modeling Systems (TMS)

(U) B. PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2001 ACCOMPLISHMENTS:

·($9.205) – Completed all Object Oriented Analyses for Increments 3, 4, 5 and 6 models which included close in weapons systems, cruise missiles, fixed wing aircraft, flight deck operations, Identify Friend or Foe (IFF), rockets, surface-to-air missiles, battle damage assessment, infrared sensors, radar, torpedoes, towing, ship and submarine kinematics, tactical organizations, platform track processing, dipping sonar, flight deck operations part 2, logistics, and mine-laying.

· ($1.176) - Conducted testing and validation for Maritime models included in increments 1-3.

· ($.096) - Conducted JSIMS Federation Integration and testing events 1-3.

· ($.554) - Developed database attribute libraries for fixed wing aircraft, rotary wing aircraft, and naval bases. Developed databases for sensors, weapons and countermeasures.

2. (U) FY 2002 PLAN:

· ($1.183) - Provide Maritime Content Library, Data Management Tool, and Data Element Description Document for JSIMS Version 1.0 Provide metadata and battlespace data for Maritime Federate for associated Alliance Integration Events. Provide operational support for associated functional verification tests and user events.

· ($2.652) - Complete requirements analysis and define design requirements for Maritime Federate development of JSIMS Version 2.0. Provide model expositions for Maritime Domain scripted missions and model representations for JSIMS Version 2.0. Provide operational support for associated functional verification tests and user events.

· ($4.252) - Provide unit-tested Maritime Federate and master track processor software for JSIMS Version 1.0. Provide unit-tested Maritime Federate software for initial Federation Integration Events for JSIMS Version 2.0.

·($1.988) - Provide engineering verification test (EVT) results for Maritime Federate software for functional increments for JSIMS Version 1.0. Provide EVT results for first increment of Maritime Federate software for JSIMS Version 2.0. Complete functional verification testing for Maritime Federate software for Version Release Milestone (VRM) 1.0. Provide technical support for associated Alliance integration/system test and user events.

R-1 SHOPPING LIST - Item No. 184

CLASSIFICATION:

EXHIBIT R-2a, RDT&E,N Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204571N/Consolidated Training Systems Development	PROJECT NUMBER AND NAME X1823/Training & Modeling Systems (TMS)

(U) B. PROGRAM ACCOMPLISHMENTS AND PLANS (CONTINUED):

·($1.133) - Provide assigned software products to support Maritime workstation displays and interactive controls to Common Component Workstation Developer. Provide operational support for JSIMS Alliance integration/system test and user events. Provide operational and training support for deployment of JSIMS to Navy sites. Complete requirements analysis for Maritime workstation for VRM 2.0.

3. (U) FY 2003 PLAN:

·($1.461) - Provide Maritime content library, data management tool and data element description document for JSIMS Version 2.0. Provide metadata and battlespace data for Maritime Federate for associated Alliance Integration Events. Continue to provide operational support for functional verification tests and user events.

·($2.978) - Provide remaining model expositions for Maritime Domain scripted missions and model representations for JSIMS Version 2.0. Complete requirements analysis and define design requirements for Maritime Federate development JSIMS Version 3.0.

·($3.809) - Provide unit-tested Maritime Federate software for remaining Federation Integration Events for JSIMS Version 2.0.

·($2.277) - Provide EVT results for remainder of Maritime Federate software for JSIMS Version 2.0. Complete functional verification testing for Maritime Federate software for VRM 2.0. Provide technical support for associated Alliance integration/system test and user events.

·($.300) - Provide assigned software products to support Maritime workstation displays and interactive controls. Complete requirements analysis for Maritime workstation VRM 3.0.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E,N Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204571N/Consolidated Training Systems Development	X1823/Training & Modeling Systems (TMS)

(U) B. PROGRAM CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	9.579	11.308	11.548
(U) Appropriated Value:	9.579	11.308	
(U) Adjustments from the President's Budget:	1.452	-0.100	-0.723
(U) FY 2003 President's Budget Submit:	11.031	11.208	10.825

CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 2001: Section 8086: 0.7% Pro-Rata Reduction (-$0.067M), Government-Wide Rescission: PL 106-554, Sec 14 (-$0.021M), SBIR Assessment (-$.160M), ASN(RDA) BTR for Naval Surface Studies (-$0.187M), ASN(RDA) BTR for JSIMS (+$2.0M), Miscellaneous Navy Adjustments (-$.113M).
FY 2002: Section 8123, Management Reform Initiative (-$.100M).
FY 2003: Miscellaneous Navy Adjustments -($.723M) for carryover, rates, inflation, etc.

(U) Schedule: No significant adjustments. Current schedule displayed in paragraph E, below.

(U) Technical: "Not Applicable"

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete	Total Cost
BLI: 2760 / Other SPAWAR Training	1.319	1.777	1.001	2.911	2.197	2.447	2.625	Continuing	Continuing
BA: 1 AGSAG: 1C4C JSIMS-M	1.885	4.723	4.416	5.682	5.675	5.752	5.920	Continuing	Continuing

R-1 SHOPPING LIST - Item No. 184

CLASSIFICATION:

EXHIBIT R-2a, RDT&E,N Project Justification			DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0204571N/Consolidated Training Systems Development	PROJECT NUMBER AND NAME X1823/Training & Modeling Systems (TMS)	

(U) D. ACQUISITION STRATEGY: N/A

(U) E. SCHEDULE PROFILE:

	FY 2001	FY 2002	FY 2003	TO COMPLETE
(U) Program Milestones			Q4 M/S C Q4 Navy IOC	
(U) Engineering Milestones	Federation Integration Events 1-3	Federation Integration Events 4 and 5 VRM 1.0		
(U) T&E Milestones		Functional Assess-ments 1 & 2 Early Operational Assessment System Functional Assessment Domain Validation Security Test & Evaluation Functional Testing Operational Assessment OT&E	OT&E Continues	
(U) Contract Milestones N/A				

R-1 SHOPPING LIST - Item No. 184

CLASSIFICATION:

Exhibit R-3 Project Cost Analysis (page 1)

DATE: **February 2002**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-7**

0204571N/Consolidated Training Systems Development

PROJECT NUMBER AND NAME: X1823/Training & Modeling Systems (TMS)

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Systems Engineering	WR/RCP	VARIOUS	5.615	2.046	11/00	2.567	11/01	2.248	11/02	Continuing	Continuing	
Licenses	WR/RCP	SSCSD, CA	0.408							Continuing	Continuing	
Software Development	WR/RCP	VARIOUS	0.000	3.282	11/00	3.513	11/01	3.429	11/02	Continuing	Continuing	
Software Development	WR/RCP	SSCSD, CA	17.956	1.356		1.576		1.210		Continuing	Continuing	
Subtotal Product Development			23.979	6.684		7.656		6.887		Continuing	Continuing	

Remarks:

Technical Data	WR/RCP	SSCSD, CA	2.318	0.404		0.689		0.654		Continuing	Continuing	
Subtotal Support			2.318	0.404		0.689		0.654		Continuing	Continuing	

Remarks:

R-1 SHOPPING LIST - Item No. 184

CLASSIFICATION:

Exhibit R-3 Project Cost Analysis (page 2)

DATE: **February 2002**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-7**

PROGRAM ELEMENT: 0204571N/Consolidated Training Systems Development

PROJECT NUMBER AND NAME: X1823/Training & Modeling Systems (TMS)

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR/RCP	VARIOUS	2.419	1.284	11/00	0.881	11/01	1.031	11/02	Continuing	Continuing	
Development Test & Evaluation	WR/RCP	SSCSD, CA		0.344		0.587		0.688		Continuing	Continuing	
Operational Test & Evaluation	WR/RCP	VARIOUS	0.134	0.101	11/00	0.144	11/01	0.203	11/02	Continuing	Continuing	
Subtotal T&E			2.553	1.729		1.612		1.922		Continuing	Continuing	
Remarks:												
Contractor Engineering Support	WR/RCP	VARIOUS	2.193	1.854	11/00	0.858	11/01	0.940	11/02	Continuing	Continuing	
Government Engineering Support	WR/RCP	SSCSD, CA	2.029	0.300		0.328		0.357	11/02	Continuing	Continuing	
Travel	WR/RCP	SPAWAR	0.093	0.060	11/00	0.065	11/01	0.065	11/02	Continuing	Continuing	
Subtotal Management			4.315	2.214		1.251		1.362		Continuing	Continuing	
Remarks:												
Total Cost			33.165	11.031		11.208		10.825		Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST - Item No. 184

APPROPRIATION/BUDGET ACTIVITY : RDT&E,N/7					R-1 ITEM NOMENCLATURE INFORMATION WARFARE 0204575N					
Exhibit R-2, RDT&E Budget Item Justification									Date: FEB 2002	
COST ($ in Millions)	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05	FY 06	FY 07	Cost to Complete	Total Cost
Z2263 Information Warfare	3.246	4.285	4.594	6.155	6.674	7.166	8.724	7.587	CONT.	CONT.
Defense Emergency Response Fund (DERF)/Cost of War (COW) *				9.000	9.000	11.000	11.000	9.000		
Quantity of RDT&E Articles	VAR	VAR	TBD	TBD	TBD	TBD	TBD	TBD	CONT.	CONT.

A. Mission Description and Budget Item Justification :

The Naval Information Warfare Activity (NIWA) serves as the Program Manager for the OFFENSIVE IW program. As such NIWA is tasked as the Navy's principal technical agent to research, assess, develop and prototype Information Warfare (IW) capabilities. The key focus is to provide tactical commanders with both an IW Mission Planning, Analysis, and Command and Control Targeting System (IMPACTS) tool and state-of-the-art Electronic Attack hardware and software. FY02 will continue design of the second generation USQ-146 (RUBICON II). This project will continue with upgrades to the USQ-146 through the out-years. Ongoing software efforts are to identify and develop integrated IW Planning and Execution tools.

*DERF/COW funds provided for RUBICON. Funds will be used to integrate Information Operations Electronic Support (ES) systems with Electronic Attack (EA) weapons system/capabilities in accordance with the Shipboard Info Warfare/Cryptologic systems ORD # 537-06-99. Efforts support war on terrorism by providing capability to deny, degrade or disrupt terrorist command, control and communications. Integrated IO system can disrupt radio-controlled weapons. Additional funding provided in support of Classified Special Access Programs (not identified). Details available under separate cover.

B. Program Change Summary: Miscellaneous funding adjustments are detailed below.

COST ($ in Millions)	FY 00	FY 01	FY02	FY 03
PB02	3.246	4.414	4.635	
Misc Program Adjustments	0.000	-0.129	-0.041	
President's Budget 03	3.246	4.285	4.594	6.155

Exhibit R-2a, RDT&E Project Justification									Date: FEB 2002	
RDT&E,N BA-7			0204575N		INFORMATION WARFARE Z2263					
Cost ($ in Millions)	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05	FY 06	FY 07	Cost to Complete	Total Cost
Project Cost	3.246	4.285	4.594	6.155	6.674	7.166	8.724	7.587	CONT.	CONT.
RDT&E Articles Qty	VAR	VAR	VAR	TBD	TBD	TBD	TBD	TBD	CONT.	CONT.

A. Mission Description and Budget Item Justification

FY 2001 Accomplishments
(2.582) IMPACTS Updates
(1.703) Electronic Attack
FY 2002 Accomplishments & Plan
(3.094) IMPACTS Updates
(1.500) Electronic Attack
FY 2003 Plan
(2.756) IMPACTS Updates
(1.899) Electronic Attack
(1.500) Computer Network Defense

B. Other Program Funding Summary

	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	ToComplete	Total Cost
OMN Line 4B7N	1.789	1.985	2.313	2.432	2.518	2.713	2.776	2.847	CONT.	CONT.
OPN 234000/6	4.003	3.866	2.882	5.158	4.661	5.578	6.349	5.462	CONT.	CONT.

C. Acquisition Strategy: This is a non-ACAT program.

D. Schedule Profile:
IMPACTS: Convert IMPACTS/GCCS-M software (RFMP and CM+) operating system format and support laboratory and shipboard tests of converted software. Continue transition to PC based software in addition to current, UNIX based Graphical User Interface (GUI). Institute a Federated Object Model (FOM) into all IW mission planning support software. Initiate inclusion of EMPIRE, RFMP, C2WC, CM+ into Mission Planning Manager. The software planned for delivery in April 2001 has been delayed. The SPAWAR GCCS-M 4.X software test cycle has slipped until January 2002 and June 2002.

Perception Management: Continued modification of the NIWA/NRL software suite to provide visual evaluation of the impact of tactical deception plans on an enemy's ability to detect ship movements using RADAR.

Electronic Attack: Initiated design of second generation RUBICON II. Completed procurement of four AN/USQ-146 units and spares. The program has also provided carry-on Electronic Support Measures (ESM) systems for deploying battle groups, supported USMC Mobile Electronic Warfare System (MEWS) evaluation and adoption of AN/USQ-146

and (Joint Special Operations Command) JSOC evaluation of modified AN/USQ-146 in a helicopter.

Operationalizing Computer Network Defense: Provide manpower, operational command and control, operating funds and state of the art computer hardware and software to rapidly integrate Computer Network Defense (CND) concepts and capabilities into Navy fleet and shore operations.

Navy Information Operations (IO), Architecture, Training and Data Management: Provides focus in 3 primary functional areas of IO: Electronic Warfare (EW); Computer Network Defense (CND); and Perception Management (PM). The timely development of the Navy IO architecture is key to the alignment of Navy IO with Fleet Operational requirements and the Navy Strategic Planning Guidance (NSPG).

Cost ($ in Millions)	FY01	FY02	FY03	FY04	FY05	FY06	FY07
IMPACTS	2.582	3.094	2.756	2.789	2.781	3.189	2.880
Perception Management	0.000	0.000	0.000	0.100	0.100	0.100	0.100
Electronic Attack	1.703	1.500	1.899	1.600	2.100	3.250	2.422
Computer Net Defense	0.000	0.000	1.500	1.500	1.500	1.500	1.500
Navy IO	0.000	0.000	0.000	0.685	0.685	0.685	0.685

Exhibit R-3 Cost Analysis												Date: FEB 2002
RDT&E,N/7			Program Element: 0204575N									INFORMATION WARFARE/Z2263
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	Var	Var	1.500	0.743	Var	1.115	Var	1.000	Var	Cont.	Cont.	
Subtotal Product Development			1.500	0.743	Var	1.115	Var	1.000	Var	Cont.	Cont.	
Cost of War* RUBICON	FFP							9.000	12/02	40.000	49.000	49.000
Development Support	Var	Var	0.500	1.414	Var	1.079	Var	1.956	Var	Cont.	Cont.	
Software Development	Var	Var	0.487	1.069	1Q01	1.965	1Q02	2.699	1Q03	Cont.	Cont.	
Subtotal Support			.987	2.483	Var	3.044	Var	4.655	Var	Cont.	Cont.	
Remarks												

Exhibit R-3, Project Cost Analysis

Exhibit R-3 Cost Analysis												Date: FEB 2002
RDT&E,N/7			Program Element: 0204575N									INFORMATION WARFARE/Z2263
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	Var	Var	0.300	0.600	Var	0		0		0		
Subtotal T&E			0.300	0.600	Var							
Remarks												
AIS Support	Var	Var	0	0.059	Var	0	0	0	0	Cont.	Cont.	
Government Engineering Support	Var	Var	0.200	0.200		.185	Var	0.250	Var	Cont.	Cont.	
Program Management Support	Var	Var	0.259	0.200		.250	Var	0.250	Var	Cont.	Cont.	
Subtotal Management			0.459	0.459	Var	0.435	Var	0.500	Var	Cont.	Cont.	
Remarks												
Total Cost			3.246	4.285	Var	4.594	Var	6.155	Var	Cont.	Cont.	
Remarks												

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification								DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7**						R-1 ITEM NOMENCLATURE 0205601N HARM Improvement					
COST ($ in Millions)	Prior Year Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost			**38.544**	**28.080**	**60.758**	**76.192**	**95.602**	**90.166**	**67.346**	**Continuing**	**Continuing**
A1780* HARM Improvement			**9.029**	**12.221**	**3.901**	**2.113**	**1.842**	**3.845**	**3.886**	**Continuing**	**Continuing**
A2185* Advanced Anti-Radiation Guided Missile (AARGM)			** **26.741**	*** **14.570**	**48.710**	**54.712**	**69.416**	**69.278**	**59.254**	**Continuing**	**Continuing**
A2211* Modernized Hellfire**			**2.774**	**1.289**	**8.147**	**14.492**	**6.473**	**4.158**	**4.206**	**Continuing**	**Continuing**
A3056 Advanced Precision Kill Weapons						**4.875**	**12.907**	**12.885**			**30.667**
A3057 Common Defense Weapon System							**4.964**				**4.964**
Quantity of RDT&E Articles **Not Applicable**											

*Prior years funding was executed under project units E2185 and W2185.
**The FY01 budget reflects a $20M Congressional Add for AARGM executed under A2661 ($15M for AARGM) and A2983 ($5M for QuickBolt). These funds were reduced by $.184 million for Congressional Reductions.
*** The FY02 budget reflects a $14.7M Congressional Add for AARGM risk reduction efforts and producibility enhancements under A2661. These funds were reduced by $.130 million for Congressional Reductions.

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) A1780/HIGH-SPEED ANTI-RADIATION (HARM) IMPROVEMENT: The International HARM Upgrade Program (IHUP) (Block IIIB/VI) is a tri-national Precision Navigation Unit (PNU) cooperative program consisting of a USN-unique tactical software upgrade and a hardware upgrade which includes an Inertial Measurement Unit (IMU) and a Global Positioning System (GPS) receiver. This upgrade will provide a much improved guidance capability for the current AGM-88B missile (in German and Italian inventories) and AGM-88C missile (in U.S. inventory). This IMU/GPS system will be retrofitted into existing missiles, as a kit.

(U) A2185/ADVANCED ANTI-RADIATION GUIDED MISSILE (AARGM) and A2661/AARGM (Congressional Add): AARGM is a Phase III Small Business Innovative Research (SBIR) program designed to demonstrate an advanced multi-mode seeker on an existing High speed Anti-Radiation Missile (HARM) airframe. A2983/QuickBolt (QB) is an Advanced Concept Technology Demonstration (ACTD) of Joint-suppression of Enemy Air Defense (J-SEAD) technology enhancements applicable to AARGM. A**n** AARGM System Development and Demonstration (SD&D) will commence in FY03. The AARGM program plans production of 1,750 missiles (60 Low Rate Initial Production (LRIP) and 1,690 Full Rate Production modification kits). For ease of tracking, Project Units W2661, E2661, A2661, and A2983 are included in the A2185 funding profile.

(U) A2211/MODERNIZED HELLFIRE: Modernized Hellfire (MH) is the joint service program to support approved Army and USMC Mission Need Statements for future multi-role precision guided weapons. To fulfill these needs, the DON is participating with the Army in joint trade studies, requirements validation analysis, Advanced Technology Demonstration programs, hardware development, Analysis of Alternatives (AOA), and the development of Milestone support documentation. Specific potential applications include development of a single multi-role weapon to replace the legacy TOW, Maverick, and Hellfire missiles, as well as development of a low cost guidance capability for the legacy unguided 2.75" rocket system.

U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification									DATE: **February 2002**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0205601N HARM Improvement					PROJECT NUMBER AND NAME A1780 HARM Improvement					
COST ($ in Millions)	Prior Year Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost			**9.029**	**12.221**	**3.901**	**2.113**	**1.842**	**3.845**	**3.886**	**Continuing**	**Continuing**
RDT&E Articles Qty											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The High-speed Anti-Radiation Missile (HARM) is a joint service program with the Air Force (NAVY lead). The program has been in full production since FY 1983. Program Element 0205601N was used until FY 1990 to develop and test one hardware and two software upgrades to the HARM as Engineering Change Proposals (ECPs). Another ECP software program (Block V) was recently developed (FY96 through FY99) to modify HARM software in order to meet operational requirements. The Block V tactical software upgrade gives HARM improved geographic specificity and improved capability against advanced waveforms. HARM Block V software was distributed to the Fleet in FY00.

The International HARM Upgrade Program (IHUP)/Precision Navigation Unit (PNU) is a tri-national (U.S., Italy, and Germany) cooperative program designed to improve the HARM's effectiveness by enhancing the missile's probability of kill and reducing the potential for fratricide while making the missile easier to employ. The Program consists of significant hardware and software modifications to the missile's control and guidance sections. The USN frequently refers to the IHUP upgrade as Block IIIB/VI. The three nations involved have agreed to jointly fund the design, development, testing and production of hardware kits to be installed in the missile control section along with an improved software version to be installed in the missile guidance section. The HARM Block IIIB/VI program started development in FY98 and will commence production in FY03. Funding in FY00 through FY03 is dedicated to the HARM Block IIIB/IV program.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	**0205601N HARM Improvement**	**A1780 HARM Improvement**

1. FY 2001 ACCOMPLISHMENTS:

(U) ($5.266) Continued design/development of Inertial Measurement sub-systems and development of hardware and software associated with Block IIIB/VI. Continued development of Block VI USN unique software sub-routines.

(U) ($.256) Continued Engineering and Project Management Services in support of the HARM Upgrade Program (Block IIIB/VI) contract.

(U) ($1.027) Continued Government engineering support of the HARM Upgrade Program (Block IIIB/VI) including preparation for Critical Design Review of Block VI software/hardware design. Effort includes further engineering studies, threat analysis, 6 Degrees of Freedom (DOF) analysis, documentation analysis, interface definition, precision navigation engineering, and software quality evaluation.

(U) ($.145) Continued Government support of contractor testing including evaluation of test plans, reports, and preparation of detailed test planning documentation, and captive flight testing. Coordinated/attended/chaired the Joint Test Plan Working Group and coordinate necessary program activities in support of future year Development Test/Operational Test (DT/OT).

(U) ($.176) Continued Government logistic support including logistics support analyses, maintenance engineering, support equipment engineering, and evaluating contractor designs.

(U) ($2.159) Continued Government and contractor participation in integration efforts. Continued developing the aircraft avionics updates required by the HARM Upgrade Program (Block VI) in addition to Command Launch Computer (CLC)/TAMPS upgrade efforts. Continued to develop HARM TAMPS/Mission Planning Module (MPM) rehost.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	**0205601N HARM Improvement**	**A1780 HARM Improvement**

2. FY2002 PLAN:

(U) ($3.680) Continue design/development of Inertial Measurement sub-systems and development of hardware and software associated with Block IIIB/VI. Continue development of Block VI USN unique software sub-routines.

(U) ($.252) Continue Engineering and Project Management Services in support of the HARM Upgrade Program (Block IIIB/VI) contract.

(U) ($.803) Continue Government engineering support of the HARM Upgrade Program (Block IIIB/VI) including preparation for Production Readiness Reviews of Block VI software/hardware design. Effort includes further engineering studies, documentation analysis, interface definition, precision navigation engineering, and software quality evaluation.

(U) ($.720) Continue Government support of contractor testing including evaluation of test plans, reports, and preparation of detailed test planning documentation, and captive flight testing. Coordinate/attend/chair the Joint Test Plan Working Group and coordinate necessary program activities in support of combined DT/OT. Continue to provide on site support to DT/OT and perform data reduction, test matrix review and prepare DT report.

(U) ($.886) Continue Government logistic support including logistics support analyses, maintenance engineering, support equipment engineering, and evaluating contractor designs.

(U) ($3.310) Continue Government and contractor participation in integration efforts. Continue developing the aircraft avionics updates required by the HARM Upgrade Program (Block VI) in addition to Command Launch Computer (CLC)/TAMPS upgrade efforts, TACMAN and part Task Trainer updates, and ELINT development. Continue to develop HARM TAMPS/Mission Planning rehost.

(U) ($2.200) Redesign Guided Missile Launcher Test Set (GMLTS) to develop capability to verify and test PNU upgrade configuration during missile reprogramming.

(U) ($.370) Portion of extramural program reserved for Small Business inovation Research assessment in accordance with 15USC 68.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	**0205601N HARM Improvement**	**A1780 HARM Improvement**

3. FY 2003 PLAN:

(U) ($.200) Continue Engineering and Project Management Services in support of the HARM Upgrade Program (Block IIIB/VI) contract.

(U) ($ .997) Continue Government Independent Operation Test and Evaluation support of the HARM Upgrade Program (Block IIIB/VI). Prepare Operational Testing final report. Conduct Product Assement Review of test units in support of production readiness analysis. Initiate Engineering Change Proposal development,

(U) ($ .200) Initiate and review the development of Engineering Change Proposal requirements/design changes.

(U) ($.635) Continue Government logistic support including logistics support analyses, maintenance engineering, support equipment engineering, and evaluating contractor designs.

(U) ($1.869) Continue Government participation in integration efforts. Continue developing the aircraft avionics updates required by HARM, Command Launch Computer (CLC)/TAMPS upgrade efforts, TACMAN and part Task Trainer updates, and ELINT development to enable HARM to meet current and evolving threats. Continue to develop HARM TAMPS/Mission Planning rehost.

CLASSIFICATION: **Unclassified**

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	**0205601N HARM Improvement**	**A1780 HARM Improvement**

(U) B. PROGRAM CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	9.368	12.330	
(U) Adjustments from the President's Budget:	-0.339	-0.109	
(U) FY 2003 President's Budget Submit:	9.029	12.221	3.901

CHANGE SUMMARY EXPLANATION:

(U) Funding: FY2001 reflects a decrease of $.339 resulting from a $.308 million decrease for Small Business Innovative Research (SBIR) Assessment and a $.031 million decrease for reprioritization of requirements within the Navy.
FY2002 reflects a decrease of $.109 million for an undistributed Congressional reduction.

(U) Schedule: Reflects slippage of FTR by one quarter and slippage of the Combined DT/OT by two quarters as a result of delayed delivery of the Global Positioning System (GPS) units being incorporated in the HARM Precision Navigation Upgrade Engineering Evaluation Units. Milestone III decision date will not be affected.

(U) Technical: Not applicable.

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete
WPN BLI 232700, HARM MODS	0	0	4.959	8.018	8.197	8.417	8.639	0

Related RDT&E: Not applicable.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	**0205601N HARM Improvement**	**A1780 HARM Improvement**

(U) D. ACQUISITION STRATEGY:

The HARM Block IIIB/VI Upgrade program is an ACAT III Program and will consist of three separate phases (EMD, Production, and Technology Evaluation and Assessment). The acquisition strategy for the HARM Block IIIB/VI Program is complete and is based upon a signed international Memorandum of Agreement with Germany, Italy, and the U.S. Navy; a tri-national Cooperative Operational Requirements Document (CORD) details German, Italian, and U.S. Navy common requirements; and a Cooperative Test and Evaluation Master Plan (CTEMP) summarizes all test requirements. These three documents drive the overall acquisition approach to the HARM Block VI project.

Management of the Block IIIB/VI upgrade will be directed by a trilateral Steering Committee, however, the U.S. Navy Project Manager (in concert with Project Managers from Germany and Italy) is responsible for Program execution. Each partner will share one-third of "common costs," the U.S. Navy will fund Block VI unique costs, and the German and Italian participants will fund Block IIIB unique costs. Each country will pay its own aircraft integration costs.

The acquisition strategy delineates Industry and Government responsibilities. The contract strategy (i.e. hardware and software for missile, upgraded missile sections, contractor team responsibility for missile performance) assigns unique work tasks to each firm. Contract strategy is to issue contracts to Bodenseewerk Geratetechnik GmbH (BGT) (German), Alenia Marconi System (AMS) (Italian), and Raytheon Missile Systems (RMS) (U.S.) firms and will maximize use of commercial-off-the-shelf (COTS)/government-off-the-shelf (GOTS)/non-development items (NDI). Each Phase I (EMD) contract type and structure is tailored to the product of each firm.

The IHUP Production Memorandum of Agreement (MOA) will include a production run of only five years with a product of relatively low price. The current IHUP sources producing EMD and LRIP units are planned to produce the production units under the HARM Mods WPN Appropriation Line Item 2032700. The acquisition strategy has been restructured to include a Low Rate Initial Production (LRIP) which will commence in FY03 under the PNU Modification Program. The current IHUP sources producing EMD and LRIP units are planned to produce the production units.

(U) E. SCHEDULE PROFILE:

	FY 2001	FY 2002	FY 2003	To Complete
(U) Program Milestones			MS III (4Q/03)	
(U) Engineering Milestones	CDR(2Q/01)	FTRR(2Q/02)		
(U) T&E Milestones	Combined DT/OT (Start 2Q/01)	Combined DT/OT (End 4Q/02)		

* BGT and AMS Contracts are not funded with U.S. funds, but are significant milestones in the Block IIIB/VI contract schedule.

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0205601N HARM Improvement			PROJECT NUMBER AND NAME **A1780 HARM Improvement**						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Block IIIB/VI Development	C/CPIF	RSC, Tuc AZ	6.535	5.266	11/00	5.880	11/01				17.681	17.681
Block VI Development/ECP	WX	NAWC WD, China Lake, CA	1.442	1.027	10/00	0.803	10/01	0.200	10/02	Continuing	Continuing	
Block VI ILS	WX	NAWC WD, Point Mugu, Ca	0.434	0.176	10/00	0.886	10/01	0.635	10/02	Continuing	Continuing	
Subtotal Product Development			8.411	6.469		7.569		0.835		Continuing	Continuing	

Remarks:

Subtotal Support												

Remarks:

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0205601N HARM Improvement			PROJECT NUMBER AND NAME **A1780 HARM Improvement**							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Block IIIB/VI	WX	NAWC WD, China Lake, CA	1.691	0.145	10/00	0.720	10/01	0.997	10/02	Continuing	Continuing	
HARM Technical/Integration Studies	WX	NAWC WD, China Lake, CA	5.304	2.159	10/00	3.310	10/01	1.869	10/02	Continuing	Continuing	
Subtotal T&E			6.995	2.304		4.030		2.866		Continuing	Continuing	
Remarks:												
Block VI Travel	WX	NAWCAD, Patuxent, MD	0.190	0.087	10/00	0.052	10/01	0.030	10/02	Continuing	Continuing	
Block VI Tech Assess/Mgmt Sup	RX	DCS, Norfolk VA	1.205	0.169	02/01	0.200	12/01	0.170	12/02		1.745	1.745
SBIR Assessment						0.370					0.370	
Subtotal Management			1.395	0.256		0.622		0.200		Continuing	Continuing	
Remarks:												
Total Cost			16.801	9.029		12.221		3.901		Continuing	Continuing	
Remarks:												

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification									DATE: February 2002		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0205601N HARM Improvement					PROJECT NUMBER AND NAME A2185* Advanced Anti-Radiation Guided Missile (AARGM)					
COST ($ in Millions)	Prior Year Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost			**26.741** *	**14.570** **	**48.710**	**54.712**	**69.416**	**69.278**	**59.254**	**Continuing**	**Continuing**
RDT&E Articles Qty											

*The FY01 budget reflects a $20M Congressional Add: $15M for AARGM producibility enhancements under A2661, and $5M for the QuickBolt ACTD under A2983. These funds were reduced by $.184 million for Congressional Reductions.
** The FY02 budget reflects a $14.7M Congressional Add for AARGM risk reduction efforts and producibility enhancements under A2661. These funds were reduced by $.130 million for Congressional Reductions.

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Advanced Anti-Radiation Guided Missile (AARGM) Project transitions a Phase III Small Business Innovative Research (SBIR) program to develop and demonstrate a multi-mode guidance section on a HARM airframe to System Development and Demonstration (SD&D) in FY03. The AARGM Phase III SD&D program is designed to integrate a Multi-mode (passive Anti-Radiation Homing (ARH)/active Millimeter Wave (MMW) Radar/Global Positioning system/Inertial Navigation System (GPS/INS)) on the HARM missile to engage and destroy enemy air defenses in the event that these systems "shut-down" or employ other countermeasures.

The issue of emitter "shut-down" as a defensive tactic has been a major shortcoming in the joint suppression of enemy air defenses (J-SEAD) element of the offensive counter air mission area for the United States Navy and Air Force. Program objectives are to achieve an effective and affordable lethal SEAD capability against mobile, relocatable, or fixed air defense threats even in the presence of emitter shutdown or other Anti-Radiation Missile (ARM) countermeasures. The multi-mode technology being integrated in the AARGM program resolves the problem of "shut-down".

The AARGM Advanced Technology Demonstration ATD technology demonstration program was an outgrowth of a Phase I and II competitive SBIR program. Phase I and II SBIR efforts successfully demonstrated the feasibility of a multi-mode seeker to address radar "shut-down" issues. Science and Applied Technology (SAT), Inc. (San Diego, CA), was awarded Phase I and II contracts (FY90-93) and was subsequently selected for a Phase III demonstration in FY94. Phase III ATD work is being performed by SAT under NAVAIR contract N00019-94-C-0078. This contractual effort will result in a cumulative contract value of $183.9M. The AARGM ATD will complete in FY 2002. The AARGM program is the vehicle for the Quick Bolt Advanced Concept Technology Demonstration (ACTD). Quick Bolt adds the ability to receive threat data from national assets, enlarging the target set and increasing aircrew situational awareness, and to transmit a Weapon Impact Assessment (WIA) message to assist in the critical area of Battle Damage Assessment (BDA). The Quick Bolt ACTD is planned for completion in FY 2003. AARGM will commence System Development and Demonstration (SD&D) in FY03. The AARGM/QB program plans production of 1,750 missiles (60 Low Rate Initial Production (LRIP) modification kits and 1,690 Full Rate Production kits).

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	**0205601N HARM Improvement**	**A2185 Advanced Anti-Radiation Guided Missile (AARGM)**

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2001 ACCOMPLISHMENTS:

(U) ($3,348) Contractor completed captive flight testing of the AARGM brassboard. Contractor completed development of AARGM prototype Guided Test Vehicle (GTV), to include hardware/software design upgrades, subsystems assembly and test, prototype integration and testing, and prototype captive carry test and data analysis. The GTV-1 missile firing was successfully conducted and all test objectives achieved in 4Q01.

(U) ($3,459) Field activity completed AARGM system engineering support of development and systems integration efforts. Completed weapon system testing studies to assess weapons technology performance and deficiencies.

(U) ($.768) Contractor performed program management and engineering services in support of the AARGM technology demonstration program. Provided technical management support and coordination of AARGM Program weapons system technology studies

(U) ($14,371) Contractor continued Risk Reduction and Producibility (RR/PE) enhancement acitivities including performance and affordability enhancements of the Anti-Radiation Homing (ARH) receiver, the MillimeterWave (MMW) Radar Transceiver, the Composite Radome, and the ARH Full-Band Antenna Array. Related efforts included plating of frequency selective surface onto the Pyrocevam Radome and radar gimbal design trades.

(U) ($4,700) Contractor continued Quick Bolt Advanced Concept Technology Demonstration (ACTD) acitivities to demonstrate the utility of integrating off board sensor cueing into a new HARM seeker and the utility of providing Weapon Impact Assessment data for BDA cueing. The Quick Bolt System Requirements Review and System Design Review were completed.

(U) ($.095) Completed Government technical management, engineering support, and coordination of AARGM Program weapons system technology development program.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	**0205601N HARM Improvement**	**A2185 Advanced Anti-Radiation Guided Missile (AARGM)**

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

2. FY 2002 Plan:

(U) ($11,600) Contractor to complete Risk Reduction and Producibility activities including ARH receiver development, ARH Full-Band development and MMW tactical waveform development.

(U) ($2,310) Field activity to continue to provide AARGM system engineering and testing support associated with ATD.

(U) ($.600) Contractor to perform engineering and technical evaluation services to support program management of AARGM.

(U) (.060) Government to provide technical management, engineering support, and coordination of AARGM ATD activities including preparation for and conduct of Milestone B for AGM-88E AARGM SD&D.

3. FY 2003 Plan:

(U) ($24,000) Contractor to commence System Development & Demonstration (SD&D) effort. Contractor to conduct Integrated Baseline Review (IBR). Contractor to update the Advanced Technology Demonstration (ATD) subsystem designs to the SD&D System Performance Specification and prepare for System Design Review (SDR). Contractor to conduct SDR.

(U) ($8,710) Field activity to commence AARGM system engineering support associated with SD&D.

(U) ($1,875) Contractor to perform engineering and technical evaluation services to support program management of AARGM.

(U) ($.125) Government to provide technical management, engineering support, and coordination of AARGM Program weapons system technology development program.

(U) ($14,000) Contractor to complete Quick Bolt Advanced Concept Technology Demonstration (ACTD) acitivities to demonstrate the utility of integrating off board sensor cueing into a new HARM seeker and the utility of providing Weapon Impact Assessment data for BDA cueing. Contractor to support Military Utility Assessment activities including hardware in-the-loop testing, field testing, and missile live firings. Contractor to deliver residual ACTD assets.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	**0205601N HARM Improvement**	**A2185 Advanced Anti-Radiation Guided Missile (AARGM)**

(U) B. PROGRAM CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	27.717	0	
(U) Adjustments from the President's Budget:	-0.976	14.570	
(U) FY 2003 President's Budget Submit:	26.741	14.570	48.710

CHANGE SUMMARY EXPLANATION:

(U) Funding: FY2001 reflects a decrease of $.976 million including a $.946 million reduction for Small Business Innovative Research (SBIR) Assessment and $.030 million reduction for reprioritization of requirements within the Navy.
FY2002 reflects an increase of $14.570 million resulting from an increase of $14.700 million for AARGM and a decrease of $.130 million for an undistributed Congressional reduction.

(U) Schedule:

The scheduled completion of the AARGM ATD program slipped from 4Q01 to 2Q02 as a result of delays associated with Captive Flight Testing. Captive Flight Testing delays were driven by challenges with flight qualification of the Anti-radiation Homing Receiver hardware, vibration failure with Global Positioning System hardware, test aircraft availability, and foul weather. GTV Live Fire Test and Analysis commenced in 4/01 and will complete in 2Q/02.

(U) Technical: Reflects definition of tasks associated with the FY02 Congressional Add for Risk Reduction/Producibility enhancements.

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete
WPN BLI 232700, HARM MODS	0	0	0	0	0	24.689	35.486	Continuing

Related RDT&E: Not applicable

(U) D. ACQUISITION STRATEGY:

The AARGM program started as a Phase I Small Business Innovative Research (SBIR), Advanced Technology Program (ATD), and has evolved into a Phase III SBIR program transitioning into System Development and Demonstration (SD&D). The AARGM SD&D fulfills U.S. Navy operational requirements and the SD&D incorporates AARGM system requirements. Small Business Administration Code of Regulation rules for Phase III SBIRs are being used for this SD&D. Government responsibilities for both the ATD and SD&D include monitoring, technical assessment and validation of contractor technology development and testing.

The Quick Bolt Advanced Concept Technology Demonstration (ACTD) will be completed in FY03 and transitioned into the AARGM SD&D.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N / BA-7	**0205601N HARM Improvement**	**A2185 Advanced Anti-Radiation Guided Missile (AARGM)**	

(U) E. SCHEDULE PROFILE

The AARGM program is an Advanced Technology Program and therefore does not have a standard detailed Milestone Plan. A list of key actions appears below.

AARGM PROGRAM	FY 2001	FY2002	FY2003	To Complete
Brassboard Captive Flight Tests (CFTs)				
Unique Design and CFT Preparation				
Contractor Managed Testing				
Captive Flight Testing	Commenced 4Q/01	Complete 2Q/02		
Guided Test Vehicles (GTVs)				
Hardware/Software Design Upgrades		Complete 2Q/02		
Subsystems Assembly and Test		Complete 2Q/02		
Integration and Test		Complete 2Q/02		
GTV Live Fire Test and Analysis	Commenced 4Q/01	Complete 3Q/02		
Contractor Design and Trade Studies		4Q/02		
Milestone B - System Development & Demonstration (SD&D) Decision		4Q/02		
QUICK BOLT PROGRAM				
System Requirements Review (SRR)	2Q/01			
System Design Review (SDR)	3Q/01			
Military Utility Assessment			3Q/03	
ACTD Final Report			3Q/03	
SD&D				
Integrated Baseline Review (IBR)			3Q/03	
System Design Review (SDR)			4Q/03	
Preliminary Design Review (PDR)				1Q/04
Critical Design Review (CDR)				2Q/04
Production Readiness Review (PRR)				4Q/05
Milestone C - Low Rate Initial Production (LRIP) Decision				1Q/06

R-1 SHOPPING LIST - Item No. 186

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0205601N HARM Improvement			PROJECT NUMBER AND NAME A2185 Advanced Anti-Radiation Guided Missile (AARGM)							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Adv Tech Dev and Risk Reduction	CPFF	SAT, Woodland Hills, CA	95.214	3.348	12/00	11.600	02/02				110.162	110.162
Engineering Support	WX	NAWC WD, China Lake, CA	12.152	3.459	10/00	1.160	02/02	8.710	10/02	47.760	73.241	
Engineering/Tech Assessment	CPIF	JHU/APL, MD	0.615								0.615	0.615
Risk Reduction	CPFF	SAT, Woodland Hills, CA	23.805	14.371	04/01						38.176	38.176
Quick Bolt	CPFF	SAT, Woodland Hills, CA		4.700	11/01			14.000	12/02		18.700	18.700
AARGM/QB SD&D	CPFF	SAT, Woodland Hills, CA						24.000	12/02	177.000	201.000	201.000
Subtotal Product Development			131.786	25.878		12.760		46.710		224.760	441.894	

Remarks:

Subtotal Support												

Remarks:

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0205601N HARM Improvement				PROJECT NUMBER AND NAME A2185 Advanced Anti-Radiation Guided Missile (AARGM)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
SD&D Test and Evaluation Support	WX	NAWC WD, China Lake, CA				1.150	02/02			22.400	23.550	
Subtotal T&E						1.150				22.400	23.550	
Remarks:												
Travel	WX	NAWCAD, Patuxent, MD	0.280	0.095	10/00	0.060	02/02	0.125	10/02	Continuing	Continuing	
Technical Assessment/Mgmt Supp	RX/LOE	DCS Alexandria, VA	2.468	0.768	12/00	0.600	02/02	1.875	11/02	5.000	10.711	10.711
Subtotal Management			2.748	0.863		0.660		2.000		Continuing	Continuing	
Remarks:												
Total Cost			134.534	26.741		14.570		48.710		Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST - Item No. 186

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification									DATE: February 2002		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0205601N HARM Improvement					PROJECT NUMBER AND NAME A2211 JAWS*					
COST ($ in Millions)	Prior Year Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost			**2.774**	**1.289**	**8.147**	**14.492**	**6.473**	**4.158**	**4.206**	**Continuing**	**Continuing**
RDT&E Articles Qty											

*Funding for FY00 was executed under Project Unit E2211 and the Joint Advanced Weapons Systems (JAWS) RDT&E line. PU A2211 will be effective beginning FY01 due to the realignment from PEO(T) to PEO(W).

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Modernized Hellfire (MH) is a joint service program in participation with the Army (Common Missile) and USMC (Advanced Precision Kill Weapon System (APKWS)) in support of an approved Mission Need Statements for future multi-role precision guided weapons. Navy MH efforts support joint System Definition and Risk Reduction efforts, Advanced Technology Demonstrations, modeling, simulation and hardware component development efforts, requirements validation and Analysis of Alternatives, aircraft integration efforts, and the development of Milestone support documentation. The Army is the lead service for these efforts, and Memorandums of Understanding establish the services responsibilities for the Concept Exploration phases. The MH efforts support the Department of the Navy's requirements for state-of-the-art weapon capabilities to complement the next generation of aircraft and to best defeat the threats of the next generation battlefield.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2001 ACCOMPLISHMENTS:

-(U) ($2.774) Formal validation of proposed requirements for the MH completed in Sep 2001. Efforts included rotary and fixed wing evaluation using Man-in-the-Loop modeling and simulation facilities at the APEX Lab and at NAWC-WD. Effort established requirements for the draft MH Joint Operational Requirements Document (ORD). Participated with the Army in their studies related to the Joint Common Missile (JCM). Continued evaluation of potential component technical solutions for future weapons via joint modeling and hardware development efforts. ($.924 Army and $1.850 government in-house).

2. FY 2002 PLAN:

-(U) ($1.289) Initiate the formal AOA to recommend a material solution to satisfy the MNS for MH. Evaluate potential component technical solutions for future weapons via joint modeling and hardware development efforts. Participate with the Army in their studies related to the JCM. Participate with the Army on development, integration, and testing efforts for the APKWS. ($.085 Army , $1.165 government in-house and $.039 for SBIR assessment.)

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	**0205601N HARM Improvement**	**A2211 JAWS**

3. FY 2003 PLAN:

-(U) ($8.147) Explore component technical solutions for the Modernized Hellfire missile via modeling, simulation, systems integration and hardware development efforts. Participate with the U.S. Army in their studies related to the Joint Common Missile.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	**0205601N HARM Improvement**	**A2211 JAWS**

(U) B. PROGRAM CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	2.324	1.300	
(U) Adjustments from the President's Budget:	0.450	-0.011	
(U) FY 2003 DoN Budget Submit:	2.774	1.289	8.147

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2001 net increase of $.450 million reflects an increase of $.553 million for a restoral of JAWS funds offset by a $.093 million SBIR assessment and a decrease of $.010 for a reprioritization of requirements within the Navy. The FY 2002 decrease of $.011 is for an undistributed congressional reduction.

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

(U) C. OTHER PROGRAM FUNDING SUMMARY:
Related RDT&E: U. S. Army P.E. 0603313A PROJ D263 Future Missile Technology Insertion (FMTI). U.S. Army P.E. 0604329A Common Missile, U.S. Army P.E. 0604802A Advanced Precision Kill Weapon System.

(U) D. ACQUISITION STRATEGY: Not an ACAT program with no specific acquisition strategy.

(U) E. SCHEDULE PROFILE: Not applicable.
Related RDT&E: U. S. Army P.E. 0603313A PROJ D263 Future Missile Technology Insertion (FMTI).

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0205601N HARM Improvement			PROJECT NUMBER AND NAME A2211 JAWS						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
APEX Lab	MIPR	AAMCOM, Huntsville, AL	0.450	0.739	12/00	0.085	12/01	6.124	12/02		7.398	
Tech evaluation & Development	MIPR	TRADOC Norfolk, VA		0.185	12/00						0.185	
APKWS	MIPR		0.100								0.100	
Subtotal Product Development			0.550	0.924		0.085		6.124			7.683	
Remarks:												
Engineering Technical Services	C/TMM	DCS Corp, Alexandria VA	0.110	0.215	01/01	0.160	01/02	0.421	01/03		0.906	0.906
Engineering Technical Services	C/TMM	Whitney, Bradley and Brown	0.150	0.363	01/01	0.240	01/02				0.753	0.753
Subtotal Support			0.260	0.578		0.400		0.421			1.659	
Remarks:												

R-1 SHOPPING LIST - Item No.186

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0205601N				PROJECT NUMBER AND NAME A2211 JAWS						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Testing	WX	NAWC WD, China Lake, CA		1.190	11/00	0.722	11/01	1.566	11/02	Continuing	Continuing	
SBIR Assessment						0.039					0.039	
Subtotal T&E				1.190		0.761		1.566		Continuing	Continuing	
Remarks:												
Travel	WX	NAWC AD, Patuxent River		0.072	11/00	0.033	11/01	0.031	11/02	Continuing	Continuing	
Travel	MIPR	AAMCOM, Huntsville, AL		0.010	11/00	0.010	11/01	0.005	11/02	Continuing	Continuing	
Subtotal Management				0.082		0.043		0.036		Continuing	Continuing	
Remarks:												
Total Cost			0.810	2.774		1.289		8.147		Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST - Item No. 186

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205604N
PROJECT TITLE: Tactical Data Links

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 2001 ACTUAL	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
X1743 Link-16 Improvements	4,219	15,073	15,207	17,586	7,564	14,496	7,847	CONT	CONT
X2126 ATDLS Integration	21,513	23,940	27,460	24,440	13,283	19,639	17,696	CONT	CONT
TOTAL	25,732	39,013	42,667	42,026	20,847	34,135	25,543	CONT	CONT

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) This program element (PE) develops and improves the Navy's tactical data link systems. It includes the Link-16 Improvements and Advanced Tactical Data Link Systems (ATDLS) Integration Programs.

(U) Link-16 Improvements extends Link-16 technological improvements to existing and developing U.S. Navy data link systems, including Link-11 and Link-22. Near term Link-11 improvements include: Mobile Universal Link Translator System (MULTS) upgrade, Common Shipboard Data Terminal Set (CSDTS), Link-11 Baseline Freeze message standard work, and the NATO Improved Link-11 (NILE) Project. Link-22 will pass TADIL-J data elements beyond the line of sight (HF) using a Time Division Multiple Access (TDMA) protocol and the improved Link-11 waveform. The Common Data Link Monitoring System (CDLMS) will be upgraded to Next Generation Command and Control Processor (C2P) to accommodate the higher CPU speeds, update rate and memory capacity required for multi-TADIL processing functions. The Multi-TADIL Capability (MTC) is the initial phase of the Next Generation C2P architecture. Next Generation C2P will be based on open system hardware and software architecture, providing a system capable of supporting critical data link functions, including Link-22, Link-16 Joint Range Extension (JRE) and high throughput Link-16. These projects will allow more effective employment of fleet units by increasing timeliness, accuracy, and content of tactical data transfer.

(U) The ATDLS Integration Program will integrate the Multifunctional Information Distribution System – Low Volume Terminal (MIDS-LVT) Link-16 terminal into U.S. Navy platforms. This multinational (U.S., France, Germany, Italy, and Spain) cooperative development program was established to design, develop, and deliver low-volume lightweight tactical information system terminals for U.S. and foreign fighter aircraft, helicopters, ships and ground sites. The terminals are designed as a pre-planned product improvement of the Joint Tactical Information Distribution System (JTIDS) Time Division Multiple Access (TDMA) Class II terminal. The goal of the MIDS-LVT program is to produce a terminal that is

smaller, lighter, fully compatible with, and as capable as the JTIDS TDMA Class 2 terminals, but suitable for use in platforms that cannot accommodate the bulkier, heavier JTIDS TDMA Class II equipment. This project includes the costs to integrate and test MIDS on the Navy's F/A-18 and selected ship platforms. ATDLS Integration of the MIDS-LVT will also provide selected U.S. Navy and U.S. Marine Corps tactical aircraft, U.S. Navy ships, and U.S. Marine Corps ground units with crypto-secure, jam resistant, low-probability-of-exploitation communication of tactical data and voice at a high data rate. It will have additional capabilities of common grid navigation and automatic relay inherent in the equipment that will enable long-range communication and provide jam resistance. The system will be interoperable among all services and NATO/Allied users equipped with MIDS-LVT or JTIDS Class II/IIA.

(U) ATDLS Integration Program also develops new and improved capabilities for Navy TADIL-J users. The Command and Control Processor is a software development effort that provides an interface between the TADILs (Links 4A, 11, and 16) and major surface ship Command and Control Systems (Advanced Combat Direction System (ACDS) and AEGIS Command and Decision (C&D)). The Common Data Link Management System is a pre-planned product improvement of the Command and Control Processor. The CDLMS will provide translation between TADILs and isolate all tactical data link equipment, message standards and protocols from tactical information processors. This will provide a flexible capability for rapidly exchanging tactical information using a single database for translating various link formats while remaining completely independent of communications equipment and tactical data computing systems. Development of new capabilities in ATDLS includes Low Cost Integration and Dynamic Network Management. Low Cost Integration effort develops a Link-16 transmit capability that will be provided to Navy aircraft platforms as a positive Combat ID method of identifying friendly units in the battlespace. Dynamic Network Management will provide automatic reconfiguration of Link-16 networks that respond instantly to emergent warfighter requirements in the field.

(U) This program element also funds: (1) the development required to accommodate expanded Link-16 operational capabilities for additional warfare areas, (2) development of automated network management aids, and (3) related systems engineering and contractor support efforts.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

(U) **NOTE:** Defense Emergency Relief Fund (DERF) funding of $5.164M will: (1) increase the scope of the Link-16 Improvement Program to develop new capabilities which are pivotal in support of the Joint and Navy requirement in developing a coherent tactical picture; and (2) crossdeck Dual Net Multi-Frequency Link-11 (DNMFL) Prototypes for data collection and analysis to design and develop DNMFL capability into the Common Data Link Management System (CDLMS).

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205604N
PROJECT TITLE: Tactical Data Links

B. (U) PROGRAM CHANGE SUMMARY:

(U) Funding:
FY 2001: Section 8086 .7% Pro-Rata Reduction (-$183K), Government-Wide Rescission (-$57K), transfer to SBIR (-$366K), Federal Technology Transfer (-$16K), and Department adjustments ($109K).
FY 2002: Section 8123: Management Reform Initiative (-$347K), and Section 8032: FFRDC (-$2K).

(U) Schedule: Link-22/Next Generation C2P IOC changed from 1Q/04 to 4Q/05 as a result of extending the design process development to align with combat system requirements. Also, additional test and evaluation efforts are required to meet fleet interoperability requirements including the Combat System Interoperability Test (CSIT), Battlegroup Interoperability Test (BGIT) and the link certification test.

MIDS DAB Milestone III (MS III) changed from 3Q/01 to 1Q/03 due to recent Navy decision to use LRIP terminals instead of EMD terminals for MOS IOT&E.

Completion of Performance Upgrades development efforts slipped from FY 01 to FY 02. OPTEVFOR's requirement to test CDLMS software version 2.0 integrated into AEGIS Baseline 6.1 has slipped from FY 01 to FY 02 due to slip in AEGIS Baseline 6.1 certification test. The slip was also due to the additional requirements to develop CDLMS software version 3.0 to meet AEGIS Baseline 6 Phase 3 software requirements since Next Generation C2P IOC was delayed until FY 05.

(U) Technical: Not applicable.

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205604N
PROGRAM ELEMENT TITLE: Tactical Data Links

PROJECT NUMBER: X1743
PROJECT TITLE: Link-16 Improvements

(U) COST (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 2001 ACTUAL	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY2006 ESTIMATE	FY2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
X1743 Link-16 Improvements	4,219	15,073	15,207	17,586	7,564	14,496	7,847	CONT	CONT

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Link-16 Improvements extends Link-16 technological improvements to existing and developing U.S. Navy data link systems, including Link-11 and Link-22. Near term Link-11 improvements include: Mobile Universal Link Translator System (MULTS) upgrade, Common Shipboard Data Terminal Set (CSDTS), Link-11 Baseline Freeze message standard work, and the NATO Improved Link-11 (NILE) Project. Link-22 will pass TADIL-J data elements beyond the line of sight (HF) using a Time Division Multiple Access (TDMA) protocol and the improved Link-11 waveform. The Common Data Link Monitoring System (CDLMS) will be upgraded to Next Generation Command and Control Processor (C2P) to accommodate the higher CPU speeds, update rate and memory capacity required for multi-TADIL processing functions. The Multi-TADIL Capability (MTC) is the initial phase of the Next Generation C2P architecture. Next Generation C2P will be based on open system hardware and software architecture, providing a system capable of supporting critical data link functions, including Link-22, Link-16 Joint Range Extension (JRE) and High Throughput Link-16. These projects will allow more effective employment of fleet units by increasing timeliness, accuracy, and content of tactical data transfer.

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205604N
PROGRAM ELEMENT TITLE: Tactical Data Links

PROJECT NUMBER: X1743
PROJECT TITLE: Link-16 Improvements

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2001 ACCOMPLISHMENTS

- (U) ($2,530) Continued to design and develop combined CDLMS/Link-22 program enhancements, which include design and development of Multi-TADIL Capability (MTC) and Next Generation Command Control Processor (C2P). Initiated development of system specifications and performance baselines for Next Generation C2P.

- (U) ($1,444) Initiated design definition and requirements for Link-22. Continued reviewing Link-22 message standards as part of the Link-22 design for Next Generation C2P.

- (U) ($ 245) Completed design and development of Subphase 2 software for the NILE Reference System (NRS), design and development of NILE Subphase 2 software for the Multi-Link Test Tool.

2. (U) FY 2002 PLAN

- (U) ($7,833) Continue to develop CDLMS/Link-22 program enhancements, which include design and development of MTC and Next Generation C2P and integration of the System Network Controller (SNC). Continue development of systems specifications and performance baselines for Next Generation C2P. Complete MTC development. Conduct Next Generation C2P Software Systems Requirement Review (SRR) and Preliminary Design Review (PDR).

- (U) ($6,340) Continue Link-22 design requirements to support integration of Link-22 into Next Generation C2P. Initiate development of CSDTS changes to support Link-22 System Processor Controller (SPC) waveforms.

- (U) ($ 900) Complete NILE Design and Development Subphase 2 software for the Multi-Link Test Tool (MLTT). Commence NILE In-Service Support Phase to continue ongoing requirements to support the Systems Network Controller (SNC) and associated equipment, including performing activities to correct deficiencies and to pursue improvements. Certify the Link-Level COMSEC (LLC) and MLTT software applications used in NILE architecture.

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205604N
PROGRAM ELEMENT TITLE: Tactical Data Links

PROJECT NUMBER: X1743
PROJECT TITLE: Link-16 Improvements

3. (U) FY 2003 PLAN

- (U) ($7,842) Continue design and development of CDLMS/Link-22 program enhancements, which include design and development of Next Generation C2P and integration with the System Network Controller. Complete system specifications and performance baselines for Next Generation C2P. Conduct Next Generation C2P Critical Design Review.

- (U) ($6,436) Continue development of CSDTS changes to support Link-22 waveforms. Continue CSDTS software changes. Complete design of Link-22 and initiate integration of Link-22 with Next Generation C2P.

- (U) ($ 929) Continue NILE In-Service Support Phase requirements to support the Systems Network Controller (SNC) and associated equipment, including performing activities to correct deficiencies and to pursue improvements. Test LLC LRIP units to validate Link-22 design and development.

B. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in Thousands)

NUMBER TITLE	FY 2001 ACTUAL	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
OPN Line 2614 ATDLS	18,169	9,876	7,608	16,710	2,648	13,729	12,016	CONT	CONT
DERF R&D		5,164							
OPN		3,416							
O&M		3,920							

Note: OPN includes procurement of hardware developed under Link-16 Improvements and ATDLS Integration Programs.

C. (U) ACQUISITION STRATEGY: NILE Reference System, Link-22 system development, CDLMS/Link-22 program enhancements and Next Generation C2P are utilizing existing cost plus contracts.

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205604N
PROGRAM ELEMENT TITLE: Tactical Data Links

PROJECT NUMBER: X1743
PROJECT TITLE: Link-16 Improvements

D. (U) SCHEDULE PROFILE:

	FY 2001	FY2002	FY 2003	TO COMPLETE
Program Milestones				Next Gen C2P IOC 4Q/05
Engineering Milestones		Next Gen C2P SRR 1Q/02	Interim Next Gen C2P S/W Certification Test 1Q/03	
		Next Gen C2P PDR 4Q/02	Next Gen C2P CDR 3Q/03	
T&E Milestones		MLTT Certification 3Q/02		Next Gen C2P S/W Acceptance Test 4Q/04
		LLC Certification 4Q/02		Next Gen C2P CSIT 1Q/05
				Next Gen C2P TECHEVAL/OPEVAL 3Q/05
				Next Gen C2P Link Cert 3Q/05
				Next Gen C2P BGIT 4Q/05
Contract Milestones			LLC LRIP 2Q/03	

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205604N PROJECT NUMBER: X2126
PROGRAM ELEMENT TITLE: Tactical Data Links PROJECT TITLE: ATDLS Integration

Exhibit R-3 Cost Analysis (page 1)

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY 03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
NATO Improved Link Eleven Subphase 2	CPIF	Logicon, San Diego, CA	2,476	245	Various	100	01/02				2,821	2,821
Link-22 Systems Engineering/Integration	WX	SPAWARSYSCEN San Diego, CA	3,261	286	Various	2,236	Various	1,462	Various	Cont	Cont	Cont
Link-22 Integration	CPFF	Logicon, San Diego, CA		100	03/01	19	01/02	269	01/03	Cont	388	388
Link-22 Integration	CPFF	DRS, Wyndmoor, PA				538	Various	707	Various	Cont	Cont	Cont
Link-22 Network Design	WX	NCTSI, San Diego, CA	345	145	Various	430	Various	380	Various	Cont	Cont	Cont
C2P Improvements	Various	Various	2,377								2,377	2,377
Multi-TADIL Capability (MTC)	Various	Various	855	95	05/01						950	950
Next Generation C2P Design/Dev	CPFF	APC, Austin, TX	1,325	905	Various	5,580	Various	6,455	Various	Cont	Cont	Cont
Next Generation C2P LLC	WX	SPAWARSYSCEN San Diego, CA				1,477	Various	635	Various	Cont	Cont	Cont
Next Generation C2P TDA	CPFF	APL/JHU, Laurel, MD		2,000	Various	2,649	Various	2,789	Various	Cont	Cont	Cont
NILE ISS Phase	Various	Logicon, San Diego, CA				300	Various	400	Various	Cont	Cont	Cont
NILE LLC Dev	CPIF	VIASAT, San Diego, CA				500	12/01	543	12/02	Cont	Cont	Cont
Subtotal Product Development			10,639	3,776		13,829		13,640		Cont	Cont	Cont

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205604N PROJECT NUMBER: X2126
PROGRAM ELEMENT TITLE: Tactical Data Links PROJECT TITLE: ATDLS Integration

Exhibit R-3 Cost Analysis (page 2)												
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY 03 Cost	FY03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Test and Evaluation	WX	SPAWARSYSCEN San Diego, CA	272	175	12/00	753	Various	913	Various	Cont	Cont	Cont
Subtotal T&E			272	175		753		913		Cont	Cont	Cont
Remarks												
Engineering Support and Travel	Various	Various	547	268	Various	491	Various	654	Various	Cont	Cont	Cont
Subtotal Management			547	268		491		654		Cont	Cont	Cont
Remarks												
Total Cost			11,458	4,219		15,073		15,207		Cont	Cont	Cont
Remarks :												

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205604N PROJECT NUMBER: X2126
PROGRAM ELEMENT TITLE: Tactical Data Links PROJECT TITLE: ATDLS Integration

Exhibit R-3 Cost Analysis for **DERF** (page 1)

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY 03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Link-22 Systems Engineering/Integration	WX	SPAWARSYSCEN San Diego, CA				800	Various				800	800
Next Generation C2P Systems Engineering	Various	Various				450	Various				450	450
Next Generation C2P Design/Dev	CPFF	APC, Austin, TX				1,500	Various				1,500	1,500
Next Generation C2P TDA	CPFF	APL/JHU, Laurel, MD				750	Various				750	750
Subtotal Product Development						3,500					3,500	3,500
Subtotal T&E						0						0
Remarks												
Engineering Support and Travel						0					0	0
Subtotal Management						0					0	0
Remarks												
Total Cost						3,500					3,500	3,500

Remarks : DERF funding not included in PB 03 totals

(U) COST (Dollars in Thousands)

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205604N
PROGRAM ELEMENT TITLE: Tactical Data Links

PROJECT NUMBER: X2126
PROJECT TITLE: ATDLS Integration

PROJECT NUMBER & TITLE	FY 2001 ACTUAL	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
X2126 ATDLS Integration	21,513	23,940	27,460	24,440	13,283	19,639	17,696	CONT	CONT

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The ATDLS Integration program will integrate the Multifunctional Information Distribution System – Low Volume Terminal (MIDS-LVT) Link-16 terminal into U.S. Navy platforms. This multinational (U.S., France, Germany, Italy, and Spain) cooperative development program was established to design, develop, and deliver low-volume lightweight tactical information system terminals for U.S. and foreign fighter aircraft, helicopters, ships and ground sites. The terminals are designed as a Pre-Planned Product Improvement (P^3I) of the Joint Tactical Information Distribution System (JTIDS) Time Division Multiple Access (TDMA) Class II terminal. The goal of the MIDS-LVT program is to produce a terminal that is smaller, lighter, fully compatible with, and as capable as the JTIDS TDMA Class II terminals, but suitable for use in platforms that cannot accommodate the bulkier, heavier JTIDS TDMA Class II equipment. This project includes the costs to integrate and test MIDS on the Navy's F/A-18 and selected ship platforms. ATDLS Integration of the MIDS-LVT will also provide selected U.S. Navy and U.S. Marine Corps tactical aircraft, U.S. Navy ships, and U.S. Marine Corps ground units with crypto-secure, jam resistant, low-probability-of-exploitation communication of tactical data and voice at a high data rate. It will have additional capabilities of common grid navigation and automatic relay inherent in the equipment that will enable long-range communication and provide jam resistance. The system will be interoperable among all services and NATO/Allied users equipped with MIDS-LVT or JTIDS Class II/IIA.

(U) ATDLS Improvement program also develops new and improved capabilities for Navy TADIL-J users. The Command and Control Processor (C2P) is a software development effort that provides an interface between the TADILs (Link 4A, 11, and 16) and major surface ship Command and Control Systems (Advanced Combat Direction System (ACDS) and AEGIS C&D). Common Data Link Management System (CDLMS) is a Pre-planned Product Improvement (P3I) of the C2P. The CDLMS will provide translation between TADILs and isolate all tactical data link equipment, message standards and protocols from tactical information processors. This will provide a flexible capability for rapidly exchanging tactical information using a single database for translating various link formats while remaining completely independent of communications equipment and tactical data computing systems. Development of new capabilities in ATDLS includes Low Cost Integration and Dynamic Network Management. Low Cost Integration effort develops a Link-16 transmit capability that will be provided to Navy aircraft platforms as a positive Combat ID method of identifying friendly units in the battlespace. Dynamic Network Management will provide automatic reconfiguration of Link-16 networks that respond instantly to emergent warfighter requirements in the field.

(U) This project also funds: (1) the development required to accommodate expanded Link-16 operational capabilities for additional warfare areas, (2) development of automated network management aids, and (3) related systems engineering and contractor support efforts.

(U) Additional terminal development costs are funded in program element 0604771D.

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205604N
PROGRAM ELEMENT TITLE: Tactical Data Links

PROJECT NUMBER: X2126
PROJECT TITLE: ATDLS Integration

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2001 ACCOMPLISHMENTS

- (U) ($13,611) Continued F/A-18 MIDS integration; software development; aircraft modifications and testing; and interoperability certification testing.
- (U) ($ 1,999) Completed MIDS on Ship development testing and operational assessment.
- (U) ($ 1,643) Continued TADIL-J System Engineering to include investigating future capabilities and enhancements and ensuring Naval upgrades are interoperable with Joint U.S. and allied forces such as joint range extension, time slot reallocation, advanced network planning aids, design tools, link monitoring management tools and enhanced throughput.
- (U) ($ 4,260) Continued Performance Upgrades including C2P Model 5 improvements, Common Data Link Management System (CDLMS) development, and Satellite-TADIL-J development.

2. (U) FY 2002 PLAN

- (U) ($17,640) Complete F/A-18 MIDS integration software, flight, development and TECHEVAL.
- (U) ($ 2,851) Integrate MIDS on Ship with Model 5 Combat System and conduct testing.
- (U) ($ 1,655) Continue TADIL-J System Engineering to include investigating future capabilities and enhancements and ensuring Naval upgrades are interoperable with Joint U.S. and allied forces such as joint range extension, dynamic network management and time critical strike applications.
- (U) ($ 1,794) Complete Performance Upgrades including C2P Model 5 improvements, Common Data Link Management System (CDLMS) development, and Satellite-TADIL-J development.

3. (U) FY 2003 PLAN

- (U) ($17,232) Complete F/A-18 MIDS OPEVAL. Conduct F/A-18 system interoperability certification testing.
- (U) ($ 2,491) Complete MIDS on Ship development and operational testing.
- (U) ($ 2,441) Continue TADIL-J Systems Engineering to include investigating future capabilities and enhancements and ensuring Naval upgrades are interoperable with Joint U.S. and allied forces such as joint range extension, dynamic network management, time critical strike, and support integration concepts for additional aircraft.
- (U) ($ 2,110) Commence Low Cost Integration development to provide common host and terminal software to support lower cost Link-16 capability on Navy aircraft systems. Supports Combat ID, situational awareness, and joint data network capability for Navy air platforms not currently integration with Link-16.
- (U) ($ 3,186) Commence Dynamic Network Management development to provide automatic reconfiguration of Link-16 networks and dynamic reallocation of network capacity to meet emergent warfighter requirements in the field as operations evolve.

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205604N PROJECT NUMBER: X2126
PROGRAM ELEMENT TITLE: Tactical Data Links PROJECT TITLE: ATDLS Integration

B. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in Thousands)

NUMBER / TITLE	FY 2001 ACTUAL	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
APN LINE									
LI 052500 F/A-18	47,234	32,373	48,577	48,740	51,294	43,667	49,862	CONT	CONT
RDT&E,DA	16,100	16,572	16,842	17,974	19,030	19,416	19,822	CONT	CONT
OPN LI 2614 ATDLS	18,169	9,876	7,608	16,710	2,648	13,729	12,016	CONT	CONT
DERF R&D		5,164							
OPN		3,416							
O&M		3,920							

Note: OPN includes procurement of hardware developed under Link-16 Improvements and ATDLS Integration Programs.

SCN - Funding for ATDLS hardware is not separately identified in the SCN budget exhibits.

RELATED RDT&E:

PE 0604771D/P771 - Link-16: Link-16 systems engineering support.
PE 0604771D/P773 - MIDS: MIDS-LVT terminal development.

C. (U) ACQUISITION STRATEGY: F/A-18 MIDS aircraft integration is utilizing cost plus fixed fee contracts on an R&D Basic Ordering Agreement with Boeing. MIDS integration and testing, TADIL-J systems engineering, and performance upgrades development are utilizing existing cost plus contracts.

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205604N PROJECT NUMBER: X2126
PROGRAM ELEMENT TITLE: Tactical Data Links PROJECT TITLE: ATDLS Integration

D. (U) SCHEDULE PROFILE

	FY 2001	FY 2002	FY 2003	TO COMPLETE
Program Milestones	LRIP 2 4Q/01	LRIP 3 3Q/02	DAB MS III 1Q/03 MIDS IOC 3Q/03	
Engineering Milestones				
T&E Milestones	F/A-18 DT-IIA-6 2Q/01 F/A-18 OT-IIA-3 1Q/01 F/A-18 DT Assist 4Q/01*			
		F/A-18 DT-IIA-7 1Q/02 F/A-18 TECHEVAL 3Q/02	F/A-18 OPEVAL 1Q/03 F/A-18 Interoperability Cert 1Q/03	
				F/A-18 FOT&E 2Q/04
	Ship DT-IIB-2 2Q/01 Ship OT-IIB-1A OA 4Q/01	Ship DT-IIB-3 1Q/02 Ship DT-II-4 3Q/02	Ship TECHEVAL 2Q/03 Ship OPEVAL 4Q/03	
Contract Milestones				

*Test requirements are performed in DT Assist event vice OT-IIA-4 event.

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205604N PROJECT NUMBER: X2126
PROGRAM ELEMENT TITLE: Tactical Data Links PROJECT TITLE: ATDLS Integration

Exhibit R-3 Cost Analysis (page 1)												
APPROPRIATION: RDT&E,N BUDGET ACTIVITY: 7		PROGRAM ELEMENT: 0205604N						Tactical Data Links				
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
F/A-18 Integration	PD	NAVAIRSYSCOM PAX River, MD	121,701	9,767	Various	11,819	Various	8,358	Various	17,542	169,187	169,187
TADIL-J System Engineering	WX	SPAWARSYSCEN San Diego,CA	25,082	1,166	Various	1,193	Various	1,224	Various	Cont	Cont	Cont
TADIL-J System Engineering	Various	Various	3,315	285	Various	293	Various	1,028	Various	Cont	Cont	Cont
MIDS on Ship	CPIF	BAE Systems Wayne, NJ (DLS)	11,488	936	Various	1,593	Various	500	12/03		14,517	14,517
MIDS on Ship	Various	Various	43,078	512	Various	650	Various	900	Various		45,140	45,140
Performance Upgrades	WX	SPAWARSYSCEN San Diego, CA	9,157	1,996	Various	1,530	Various				12,683	12,683
Performance Upgrades	Various	Various	4,783								4,783	4,783
Air Defense System Integrator	CPFF	APC, Austin, TX	2,059								2,059	2,059
Dual Net Link-11	WX	Various	1,866								1,866	1,866
Korean Air Defense Sys Impr	CPFF	JHU/APL, Laurel, MD	900								900	900
DNMFL Prototypes	Various	Various		1,766	Various	86	10/01				1,852	1,852
Low Cost Integration	TBD	TBD						1,946	Various	Cont	Cont	Cont
Dynamic Network Management	TBD	TBD						2,940	Various	Cont	Cont	Cont
Subtotal Product Dev			223,429	16,428		17,164		16,896		Cont	Cont	Cont
Remarks:												

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205604N PROJECT NUMBER: X2126
PROGRAM ELEMENT TITLE: Tactical Data Links PROJECT TITLE: ATDLS Integration

Exhibit R-3 Cost Analysis (page 2)												
APPROPRIATION: RDT&E,N BUDGET ACTIVITY: 7			PROGRAM ELEMENT: 0205604N						Tactical Data Links			
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Subtotal Support												
Remarks												
Test and Evaluation	Various	Various	3,975									3,975
MIDS F/A-18 T&E	WX	SPAWARSYSCEN San Diego, CA	5,479	1,609	Various	1,607	Various	2,967	Various	Cont	Cont	Cont
MIDS F/A-18 T&E	Various	Various	6,406	643	Various	2,400	Various	4,575	Various	Cont	Cont	Cont
MIDS on Ship T&E	PD	OPTEVFOR, Norfolk, VA		42	Various	50	Various	500	Various			592
MIDS on Ship T&E	WX	SPAWARSYSCEN San Diego, CA	665	275	Various	280	Various	400	Various		1,620	1,620
MIDS Test Assets	SS/CPAF /IF	MIDSCO Fairfield, NJ	6,594								6,594	6,594
Subtotal T&E			23,119	2,569		4,337		8,442		Cont	Cont	Cont
Remarks												

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205604N PROJECT NUMBER: X2126
PROGRAM ELEMENT TITLE: Tactical Data Links PROJECT TITLE: ATDLS Integration

Exhibit R-3 Cost Analysis (page 2)												
APPROPRIATION: RDT&E,N BUDGET ACTIVITY: 7			PROGRAM ELEMENT: 0205604N						Tactical Data Links			
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Engineering Support and Travel	Various	Various	2,479	2,516	Various	2,439	Various	2,122	Various	Cont	Cont	Cont
Subtotal Management			2,479	2,516		2,439		2,122		Cont	Cont	Cont
Remarks												
Total Cost			249,027	21,513		23,940		27,460		Cont	Cont	Cont

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205604N
PROGRAM ELEMENT TITLE: Tactical Data Links

PROJECT NUMBER: X2126
PROJECT TITLE: ATDLS Integration

Exhibit R-3 Cost Analysis for **DERF** (page 1)												
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY 03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
DNMFL Link 11 Prototype Installation	WX	SPAWARSYSCEN San Diego, CA				1,025	Various				1,025	1,025
DNMFL Link 11 Prototype Systems Engineering	CPFF	JHU/APL, Laurel, MD				389	Various				389	389
DNMFL Link 11 Prototype (MK-70 Switchboard)	WX	NSWC Port Hueneme Division				250	Various				250	250
Subtotal Product Development						1,664					1,664	1,664
						0					0	0
Subtotal T&E												
Remarks												
Engineering Support and Travel						0					0	0
Subtotal Management						0					0	0
Remarks												
Total Cost						1,664					1,664	1,664
Remarks : DERF funding not included in PB 03 totals												

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA 7**					R-1 ITEM NOMENCLATURE Surface ASW Combat System Integration/ 0205620N					
COST ($ in Millions)		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Total PE Cost		30.008	27.869	24.424	16.609	14.337	6.964	11.708	CONT.	CONT.
ASW Combat Systems Integration/ Q0896		0.000	0.000	0.000	0.000	0.000	1.288	5.444	CONT.	CONT.
Surface ASW System Improvements/ Q1916		30.008	27.869	24.424	16.609	14.337	5.676	6.264	CONT.	CONT.
Quantity of RDT&E Articles										

A. Mission Description and Budget Item Justification: The objective of this Program Element (PE) is to significantly improve existing AN/SQQ-89(V) and Surface Ship Sonar System capabilities. It will improve AN/SQQ-89(V) Measures of Performance (MOP) by enhancing detection, tracking, classification, data processing and display capabilities, and increasing acoustic sensor frequency bandwidth. This PE will take advantage of Acoustic Rapid COTS Insertion (ARCI) type initiatives and the AN/SQQ-89(V) open system architecture to develop and integrate the Multi-Function Towed Array (MFTA) with active sonar bistatics (Echo Tracker Classifier - ETC) and torpedo defense capabilities into the AN/SQQ-89(V) as a backfit program for CG47 (as part of the Cruiser Conversion program) and DDG51 class ships (AN/SQQ-89A(V)15). Via the Peer Review Process (PRP), the AN/SQQ-89A(V)15 system architecture will support technology refresh, maximize software portability, and support interoperability with multiple AEGIS baselines.

B. Program Change Summary:

	FY 2001	FY 2002	FY 2003
FY 2002 President's Budget:	29.314	28.119	
Appropriated Value:	29.585	28.119	
Adjustments to FY 2001/2002 Appropriated Value/ FY 2002 President's Budget:	0.423	-0.250	
FY 2003 OSD/OMB Budget Submit:	30.008	27.869	24.424

Funding: FY 2001 changes include a net increase for ASN(RDA) Below Threshold Reprogrammings (+1.324) and decreases for SBIR (-0.630) and Congressional reductions (-0.271). FY 2002 decrease for Federally Funded Research Centers (FFRDC)(-0.002) and Sec. 8123, Management Reform Initiatives (-0.248).

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/ BA 7**	Surface ASW Combat System Integration/ 0205620N				Surface ASW System Improvements/ Q1916					
COST ($ in Millions)		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Project Cost		**30.008**	**27.869**	**24.424**	**16.609**	**14.337**	**5.676**	**6.264**	**CONT.**	**CONT.**
RDT&E Articles Qty										

A. Mission Description and Budget Item Justification: The Surface ASW System Improvements project will support essential performance enhancements on AN/SQQ-89(V) and Surface Ship Sonar Systems. This project will develop and refine active classification and display upgrades to support implementation in both the AN/SQQ-89(V) hull subsystem and the MFTA. This Project will integrate the MFTA, completed in Project V0896, with active sonar bistatics (ETC) and torpedo defense capablities into the AN/SQQ-89(V) as a backfit program on CG47 (as part of the Cruiser Conversion program) and DDG51 class ships (AN/SQQ-89A(V)15). Via the PRP, the AN/SQQ-89A(V)15 system architecture will support technology refresh, maximize software portability, and support interoperability with multiple AEGIS baselines. Finally, this Project will develop the AN/SQQ-89(V) design and interface with the Light Airborne Multi-Purpose System (LAMPS) Mk III Blk II system.

PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2001 Accomplishments:

($3.237) Completed active sonar bistatic processing (Echo Tracker Classifier (ETC)) to support implementation with the AN/SQQ-89A(V)15.

($1.153) Completed torpedo Detection, Classification and Localization (DCL) software to support implementation with the AN/SQQ-89A(V)15.

($22.104) Continued integration of MFTA, active sonar bistatic processing (ETC), and torpedo DCL software into the AN/SQQ-89A(V)15.

($1.100) Began integration of LAMPS Mk III Blk II KuBand into the AN/SQQ-89(V).

($0.179) Completed analysis of the Computer Aided Dead Reckoning Tracer (CADRT) TECHEVAL and OT-IIA at-sea test of an AN/SQQ-89(V)6 system with active adjunct processing and improved contact management.

($0.335) Coordinated and conducted MFTA sea test.

($1.900) Completed transition of Environmentally Adaptive (EA) algorithms and active sonar parameter control into the AN/SQQ-89A(V)15.

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2002
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/ BA 7**	Surface ASW Combat System Integration/ 0205620N	Surface ASW System Improvements/ Q1916	

2. (U) FY 2002 Plan:

($8.500) Enhance AN/SQQ-89A(V)15 system architecture to support technology refresh, maximize software portability, and modify external interfaces to support interoperability with multiple AEGIS baselines.

($17.294) Continue integration of MFTA, active sonar bistatic processing (ETC), and torpedo DCL software into the AN/SQQ-89A(V)15.

($0.275) Coordinate and conduct MFTA sea test.

($1.100) Continue the integration of the LAMPS Mk III Blk II KuBand into the AN/SQQ-89(V).

($0.700) Coordinate and conduct developmental test DT-IIIAP of the improved AN/SQQ-89(V)6 Torpedo Alertment Upgrade.

3. (U) FY 2003 Plan:

($0.335) Coordinate and conduct MFTA sea test.

($20.954) Contract for delivery of AN/SQQ-89A(V)15 Engineering Development Model (EDM), provide associated integration support, and coordinate installation efforts.

($1.000) Begin the development of improved torpedo detection algorithms to be incorporated into the Torpedo Recognition and Alertment Functional Segment (TRAFS).

($0.874) Continue the integration of the LAMPS Mk III Blk II KuBand into the AN/SQQ-89(V).

($0.650) Coordinate and conduct operational test OT-IIIJ of the improved AN/SQQ-89(V)6 Torpedo Alertment Upgrade.

($0.350) Coordinate and conduct developmental test DT-IIIA and operational test OT-IIIA of an AN/SQQ-89(V)14 system with improved contact management capabilities (CADRT).

($0.261) Provide AN/SQQ-89(V) performance data analysis, independent verification and validation, and modeling and simulation using MOP and Measures of Effectiveness (MOE) methods.

EXHIBIT R-2a, RDT&E Project Justification			DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/ BA 7**	Surface ASW Combat System Integration/ 0205620N	Surface ASW System Improvements/ Q1916	

B. Other Program Funding Summary:

	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY2007	To Complete	Total Cost
OPN Budget Line Item 213600/5	14.1	16.4	24.2	31.2	21.3	21.3	23.9	CONT.	CONT.

Related RDT&E: N/A

C. Acquisition Strategy: Development work in this project is performed primarily by:

- Advanced Acoustic Concepts (AAC), NY - SBIR Phase III contract for common acoustic procesor
- Applied Hydro-Acoustics Research (AHA), MD - SBIR Phase III contract for common acoustic processor and beamformer processing for MFTA
- Digital System Resources (DSR), VA - SBIR Phase III contract for common acoustic processor
- Johns Hopkins University Applied Physics Laboratory (JHU/APL), MD - Design, development and integration of MFTA, Torpedo Detection Classification and Localization (TDCL) improvements, and emerging active sonar technologies into the AN/SQQ-89(V)
- Lockheed Martin, NY - Incumbent AN/SQQ-89(V) Design Agent. This contract was awarded competitively and will extend through FY 2002
- Prime Contractor TBD - AN/SQQ-89(V) Design Agent. This contract to be competitively awarded in FY 2002
- Naval Undersea Warfare Center, Newport, RI - AN/SQQ-89(V) Technical Direction Agent
- Naval Surface Warfare Center, Dahlgren, VA - AN/SQQ-89(V) Technical Direction Agent

Future Plan:

Award new competitive AN/SQQ-89(V) contract in FY 2002.
Complete AN/SQQ-89A(V)15 EDM in FY 2003 (RDT&E PE 0205620N).

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/ BA 7**	Surface ASW Combat System Integration/ 0205620N	Surface ASW System Improvements/ Q1916

D. Schedule Profile

	FY 2001	FY2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
Program Milestones	Begin LAMPS Mk III Blk II Integration		Complete AN/SQQ-89A(V)15 EDM	AN/SQQ-89A(V)15 EDM Installed			Complete LAMPS Mk III Blk II Integration
Engineering Milestones	2Q Integrated MFTA Sea Test	3Q Integrated MFTA Sea Test	1Q Integrated MFTA Sea Test				
T&E Milestones	3Q (V)6 CADRT OT-IIA Sea Test	4Q Improved TAU DT-IIIAP Sea Test	2Q Improved TAU OT-IIIJ Sea Test 2Q (V)14 CADRT DT-IIIA Sea Test 4Q (V)14 CADRT OT-IIIA Sea Test	3Q AN/SQQ-89A(V)15 DT Sea Test	2Q AN/SQQ-89A(V)15 OT Sea Test		
Contract Milestones		Award new competitive AN/SQQ-89(V) contract					

Exhibit R-3 Cost Analysis (page 1) | DATE: February 2002

APPROPRIATION/BUDGET ACTIVITY: RDT&E, N/ BA 7 | Surface ASW Combat Systems Integration/ 0205620N | Surface ASW System Improvement V1916/ Q1916

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary H/W & S/W Development	C/CPFF	AAC, NY	0.000	0.911	01/01	2.158	12/01	0.374	11/02	CONT.	CONT.	
Primary H/W & S/W Development	C/CPFF	AHA, MD	0.379	1.247	03/01	0.745	11/01	0.200	11/02	CONT.	CONT.	
Primary H/W & S/W Development	C/CPFF	DSR, VA	0.489	1.312	12/00	1.875	01/02	2.500	11/02	CONT.	CONT.	
Primary H/W & S/W Development	C/CPFF	JHU/APL, MD	1.953	1.780	02/01	2.986	01/02	0.500	12/02	CONT.	CONT.	
Primary H/W & S/W Development	C/CPAF	Lockheed Martin, NY	14.165	14.514	11/00	6.117	11/01			0.000	34.796	34.796
Primary H/W & S/W Development	C/CPAF	Prime Contractor TBD				2.126	03/02	12.462	11/02	TBD	TBD	TBD
Primary H/W & S/W Development	WR	NSWC/Dahlgren, VA	5.509	1.271	11/00	0.556	12/01	1.725	11/02	CONT.	CONT.	
Primary H/W & S/W Development	WR	NUWC/Newport, RI	19.602	3.205	11/00	2.615	11/01	3.661	11/02	CONT.	CONT.	
Primary H/W & S/W Development	Var.	Var.	19.094	4.521	Var.	7.138	Var.	1.020	Var.	CONT.	CONT.	
Common Systems Engineering	Var.	Var.	0.580							0.000	0.580	
Subtotal Product Development			61.771	28.761		26.316		22.442		CONT.	CONT.	

Remarks:
Budgeted for award fees ($M): 1.116 in FY01 (Lockheed Martin, NY) , 0.764 in FY02 (0.584 - Lockheed Martin, NY and 0.180 - Prime Contractor TBD) and 0.253 in FY03 (Prime Contractor TBD). Lockheed Martin's performance has been excellent, earning close to 100% of possible award fee for the most recent award fee periods.

Studies, Analysis, & Evaluations	Var.	Var.	0.900							0.000	0.900	
Engineering & Technical Services	Var.	Var.	1.500							0.000	1.500	
Subtotal Support			2.400	0.000		0.000		0.000		0.000	2.400	

Remarks:

Exhibit R-3 Cost Analysis (page 2) | DATE: **February 2002**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N/ BA 7** | Surface ASW Combat Systems Integration/ 0205620N | Surface ASW System Improvement V1916/ Q1916

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Development & Operational T&E	Var.	Var.	4.260	0.179	Var.	0.700	Var.	1.000	Var.	CONT.	CONT.	
Miscellaneous T&E	Var.	Var.	2.447					0.261	Var.	CONT.	CONT.	
Subtotal T&E			6.707	0.179		0.700		1.261		CONT.	CONT.	
Remarks:												
Program Management Support	Var.	Var.	4.815	0.918	Var.	0.703	Var.	0.571	Var.	CONT.	CONT.	
Travel	Var.	Var.	0.854	0.150	Var.	0.150	Var.	0.150	Var.	CONT.	CONT.	
Subtotal Management			5.669	1.068		0.853		0.721		CONT.	CONT.	
Remarks:												
Total Cost			76.547	30.008		27.869		24.424		CONT.	CONT.	

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-7**					R-1 ITEM NOMENCLATURE MK48 ADCAP/0205632N					
COST ($ in Millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007		Cost to Complete	Total Cost
Total PE Cost	**15.156**	**16.979**	**22.052**	**23.073**	**30.182**	**30.685**	**31.296**		**CONT.**	**CONT.**
MK48 ADCAP/F0366	**15.156**	**16.979**	**22.052**	**23.073**	**30.182**	**30.685**	**31.296**		**CONT.**	**CONT.**
Quantity of RDT&E Articles										

A. (U) Mission Description and Budget Item Justification: The MK 48 ADCAP (ADvanced CAPability) torpedo R&D program focuses on two specific areas near term: Torpedo Advanced Processor Builds (APBs) and wideband sonar capability. The Chief of Naval Operations continues to stress shallow water (less than 600 feet) as a critical operating area to counter third world diesel electric submarines. Torpedo testing in shallow water has demonstrated that in-service ADCAP has less than full capability in this difficult environment. However, this testing, in conjunction with laboratory simulation efforts, has shown that significant performance improvements can be made by implementing changes to weapon tactics and software algorithms. Development, implementation and testing of these changes is being accomplished under the Torpedo APB program.

(U) Countermeasure (CM) sophistication and availability on the open market directly affects ADCAP kill proficiency and its ability to counter rapidly evolving threats. The focus of the MK 48 ADCAP torpedo R&D program for FY01 and out has shifted from being primarily concentrated on Software Block Upgrade efforts towards coordinated hardware upgrades, rapid Commercial-Off-the-Shelf insertion, and Torpedo APBs to rapidly upgrade the ADCAP to counter evolving threats and maintain robust performance. The Common Broadband Advanced Sonar System (CBASS) program will develop and field a wideband sonar capable of identifying CMs and discriminating them from the target. CBASS will develop 22 test articles (2 test vehicles and 20 Engineering Development Models (EDMs)). CBASS met Milestone II requirements on 6 March 1998 and received MDA approval to proceed into EMD. Full rate production and IOC are scheduled for FY06. The intent of the CBASS program is to achieve improvements in shallow water torpedo performance over current (MK48 Mod 5) capability.

(U) The introduction of the Torpedo Technology Insertion in FY04 will provide for incremental torpedo improvements and upgrades (including the development and test of New Technology Concepts from the R&D community (6.2/6.3) and contractor Independent Research and Development (IR&D)). This approach will incorporate developmental testing of the Future Naval Capability (FNC) transitioning technologies for ADCAP upgrades and help to provide the foundation for Next Generation Torpedoes. These efforts will continue torpedo development investment at a lower cost and shorter term than traditional torpedo programs.

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-7**	R-1 ITEM NOMENCLATURE MK48 ADCAP/0205632N

FY 2001 ACCOMPLISHMENTS:

- (U) ($4.222) Torpedo Advanced Processor Build continued in order to address Software Block Upgrade IV OPEVAL results. Efforts included software coding, modeling and simulation of software releases (including development and validation of models) and engineering tests in water for evaluation of proposed maintenance release. Conducted validation of safety features for submarine crew safety.

- (U) ($0.100) Provided for COMOPTEVFOR trusted agent test support and data analysis.

- (U) ($10.834) Completed CBASS design development and fabrication of test vehicles. Continued development of advanced wideband algorithms, signal processing, and tactical software. Conducted Preliminary and Critical Design Reviews. Continued in-water testing to support algorithm development and initial software builds.

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-7**	R-1 ITEM NOMENCLATURE MK48 ADCAP/0205632N

FY 2002 PLANS:

- (U) ($4.499) Torpedo Advanced Processor Build efforts continue in order to address fleet identified performance priorities for MK48 ADCAP MODS. Efforts include software coding, modeling and simulation of software releases (including development and validation of models) and engineering tests in water for evaluation of proposed releases. Conduct validation of safety features for submarine crew safety.

- (U) ($0.100) Provide for COMOPTEVFOR trusted agent test analysis and model validation support.

- (U) ($12.380) Initiate fabrication of CBASS EDM hardware. Continue development of advanced wideband algorithms, signal processing, and tactical software. Continue integration of CBASS prototype hardware and software components and test equipment. Continue in-water testing to support algorithm development and initial software builds.

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-7**	R-1 ITEM NOMENCLATURE MK48 ADCAP/0205632N

FY 2003 PLANS:

- (U) ($9.198) Torpedo Advanced Processor Build efforts continue in order to address fleet identified performance priorities for MK48 ADCAP MODS and to address broadband sonar improvements. Efforts include software coding, modeling and simulation of software releases (including development and validation of models) and engineering tests in water for evaluation of proposed releases. Conduct Follow-On Test and Evaluation of MK48 ADCAP MODS per TEMP. Conduct validation of safety features for submarine crew safety.

- (U) ($0.200) Provide for COMOPTEVFOR trusted agent test analysis and model validation support.

- (U) ($8.654) Integration and delivery of CBASS EDM hardware. Continue development of advanced wideband algorithms, signal processing, and tactical software. Continue integration of CBASS prototype hardware and software components and test equipment. Continue in-water testing to support algorithm development and initial software builds.

- (U) ($4.000) Conduct developmental testing of MK48 ADCAP Mod 6 in cold water, littoral environments. Efforts include torpedo preparations, modeling and simulation predictions, post-run analysis, and preparations for required submarine hit-shot certification analysis prior to exercise.

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: February 2002
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-7**	R-1 ITEM NOMENCLATURE MK48 ADCAP/0205632N

B. (U) Program Change Summary:

	FY 2001	FY 2002	FY 2003
(U) FY 2002 President's Budget:	15.707	17.130	
(U) Appropriated Value:	15.853	17.130	
(U) Adjustments to FY 2001/2002 Appropriated Value/FY 2002 President's Budget:	-0.697	-0.151	
(U) FY 2003 PRES Budget Submit:	15.156	16.979	22.052

Funding:
FY01: Net reduction of -$0.697M is due to -$0.496M USN directed undistributed reduction and -$0.201M SBIR reduction.
FY02: Reduction of -$0.151 is due to USN directed undistributed reduction.
FY03: N/A

Schedule: The CBASS program in-water test program has been extended one year to coincide with EDM fabrication and software development. This results in a one year extension of developmental testing, technical and operational testing. Operational Evaluation concludes in FY06.

Technical: Due to technical design complexities and results from systems requirements review analysis, additional engineering efforts were required to support hardware and software development prior to commencement of in-water developmental testing with prototypes.

C. Other Program Funding Summary ($ in millions)

	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete
MK48 ADCAP MODS (WPN/PE0204284N/BA-3/P-1 Item 322500)	42.882	42.031	62.124	68.324	91.941	89.012	77.298	CONT.
Sub. Tactical Warfare Systems (RDT&E/PE0603562N/BA-4/S1739)	4.172	9.323	11.601	6.763	6.818	6.918	7.033	
Advanced Submarine Systems (RDT&E/PE0603561N/BA4)	128.391	124.142	107.389	114.129	111.190	115.037	116.191	

D. (U) Acquisition Strategy: CBASS EMD contract was competitively awarded among qualified ADCAP producers.

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-7**	R-1 ITEM NOMENCLATURE MK48 ADCAP/0205632N

E. Schedule Profile:

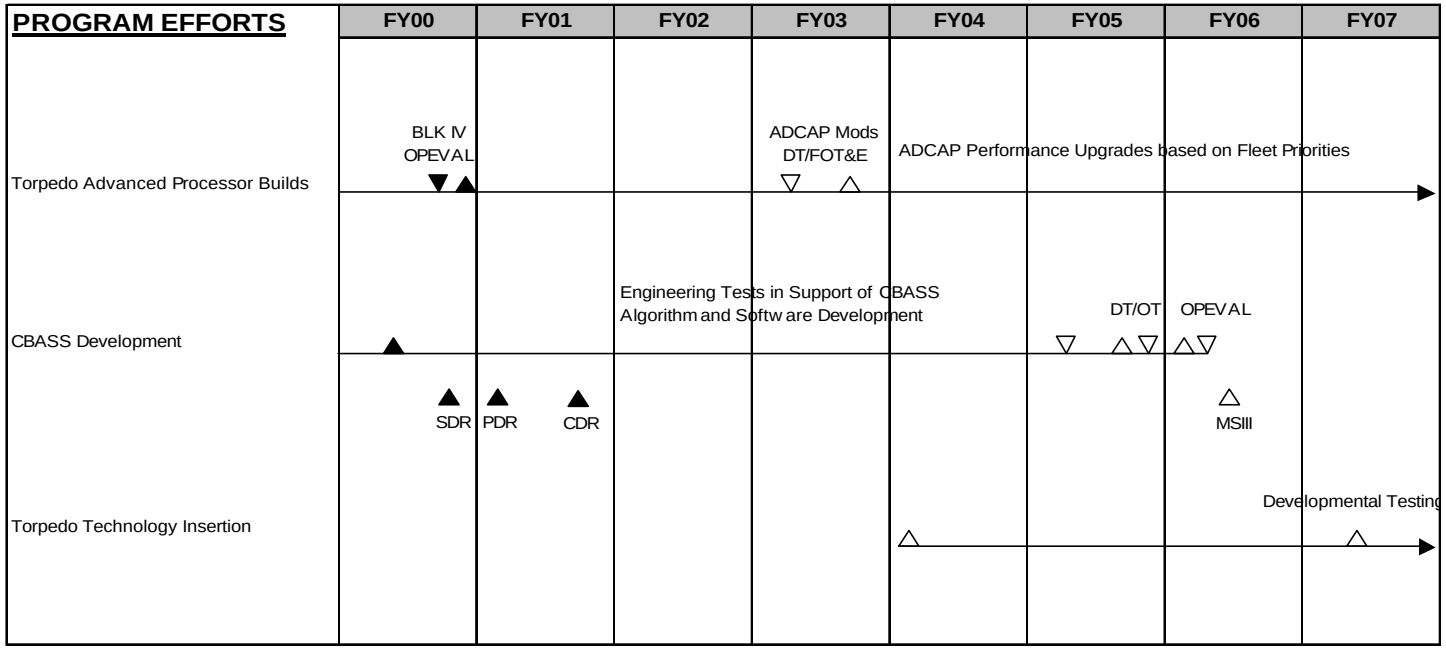

Exhibit R-3 Cost Analysis (page 1) | DATE: **February 2002**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N/BA-7** | PROGRAM ELEMENT: **MK48 ADCAP/0205632N** | PROJECT NAME AND NUMBER: MK48 ADCAP/F0366

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	WR	NUWC Newport, RI	CONT.	0.485	10/00	0.184	10/01	0.069	10/02	CONT.	CONT.	N/A
Primary Hardware Development	C,CPFF	ARL/PSU State College, PA	CONT.	0.000		0.000		0.000		CONT.	CONT.	N/A
Primary Hardware Development	C,CPFF	Northrop Grumman	13.458	8.151	11/00	5.089	10/01	3.788	10/02	0.307	30.793	30.793
Ancillary Hardware Development											0.000	
Systems Engineering	WR	NUWC Newport, RI	CONT.	1.498	10/00	4.195	10/01	5.058	10/02	CONT.	CONT.	N/A
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			CONT.	10.134		9.468		8.915		CONT.	CONT.	

Remarks: Total Cost and Target Value of Contract represents contract Latest Revised Estimate based on completed alpha pricing negotiations and CBASS hardware technical requirements.

Development Support Equipment											0.000	
Software Development	WR	NUWC Newport, RI	CONT.	1.559	10/00	3.393	10/01	4.033	10/02	CONT.	CONT.	N/A
Software Development	C,CPFF	ARL/PSU State College, PA	CONT.	0.150	11/00	0.350	10/01	0.450	10/02	CONT.	CONT.	N/A
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management												
Technical Data											0.000	
GFE											0.000	
Subtotal Support			CONT.	1.709		3.743		4.483		0.000	CONT.	

Remarks:

Exhibit R-3 Cost Analysis (page 2) | DATE: **February 2002**

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT	PROJECT NAME AND NUMBER
RDT&E, N/BA-7	**MK48 ADCAP/0205632N**	MK48 ADCAP/F0366

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Test & Evaluation	WR	NUWC Newport, RI	CONT.	1.156	10/00	1.706	10/01	5.168	10/02	CONT.	CONT.	N/A
Developmental	Various	Various	CONT.	0.231	11/00	0.100	10/01	0.200	10/02	CONT.	CONT.	N/A
Modeling & Simulation	WR	NUWC Newport, RI	CONT.	0.995	10/00	0.908	10/01	1.731	10/02	CONT.	CONT.	N/A
Modeling & Simulation	Various	Various	CONT.	0.619	11/00	0.650	10/01	0.900	10/02	CONT.	CONT.	N/A
GFE											0.000	
Subtotal T&E			CONT.	3.001		3.364		7.999		CONT.	CONT.	
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support	Various	Various	CONT.	0.272	MISC.	0.274	MISC.	0.500	MISC.	CONT.	CONT.	N/A
Travel				0.040		0.045		0.045		CONT.	CONT.	N/A
Labor (Research Personnel)											0.000	
Overhead				0.000		0.085		0.110		CONT.	CONT.	N/A
Subtotal Management			CONT.	0.312		0.404		0.655		CONT.	CONT.	
Remarks:												
Total Cost			CONT.	15.156		16.979		22.052		CONT.	CONT.	
Remarks:												

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification | DATE: **FEBRUARY 2002**

APPROPRIATION/BUDGET ACTIVITY
RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7

R-1 ITEM NOMENCLATURE
0205633N, AVIATION IMPROVEMENTS

COST ($ in Millions)	Prior Year Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost			**48.339**	**44.929**	**40.915**	**48.447**	**38.297**	**41.943**	**42.630**	**Continuing**	**Continuing**
W0601 Common Ground Equipment			**2.796**	**3.328**	**3.444**	**3.488**	**2.991**	**3.027**	**3.072**	**Continuing**	**Continuing**
W0852 Consolidated Automated Support System (CASS)			**7.845**	**6.682**	**6.757**	**6.740**	**6.707**	**6.805**	**6.914**	**Continuing**	**Continuing**
W1041 Aircraft Equip Reliability/Maintainability Improvement Program (AERMIP)			**0.735**	**0.622**	**0.620**	**0.631**	**0.534**	**0.540**	**0.546**	**Continuing**	**Continuing**
W1355 Aircraft Engine CIP			**36.963**	**30.431**	**30.094**	**37.588**	**28.065**	**31.571**	**32.098**	**Continuing**	**Continuing**
W9109 Aircraft Age Exploration Model Development				**2.478**							**2.478**
W9110 Nano-Composite Hard-Coat For Aircraft Coatings				**1.388**							**1.388**
Quantity of RDT&E Articles **Not Applicable**											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Common Ground Equipment is a Naval Aviation Project to apply new technology to common support equipment necessary to support multiple aircraft. Consolidated Automated Support System (CASS) is a standardized Automated Test Equipment (ATE) with computer assisted, multi-function capabilities to support the maintenance of aircraft subsystems and missiles. Aircraft Equipment Reliability/Maintainability Improvement Program (AERMIP) is the only Navy program that provides engineering support for in-service out-of-production aircraft equipment, and provides increased readiness at reduced operational and support cost. The Aircraft Engine Component Improvement Program (CIP) develops reliability and maintainability (R&M) and safety enhancements for in-service Navy aircraft engines, transmissions, propellers, starters, auxiliary power units, electrical generating systems, fuel systems , fuels, and lubricants. Nano-Composite Hard-Coat for Aircraft Coatings is evaluation of erosion coatings for propulsion systems.

(U) JUSTIFICATION FOR BUDGET ACTIVITY:

This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

R-1 SHOPPING LIST - Item No. 190

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: **FEBRUARY 2002**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0205633N Aviation Improvements					PROJECT NUMBER AND NAME W0601 Common Ground Equipment					
COST ($ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost			**2.796**	**3.328**	**3.444**	**3.488**	**2.991**	**3.027**	**3.072**	**Continuing**	**Continuing**
RDT&E Articles Qty											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This project introduces effective, efficient fleet support equipment through the application of new technology, thereby improving fleet supportability and aircraft readiness.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2001 ACCOMPLISHMENTS:

- (U) ($.389) Continued Advance Boresight Equipment (ABE) program.
- (U) ($.721) Continued Next Generation Munitions Handler (NGMH) program.
- (U) ($1.686) Completed Joint Engine Test Initiave (JETI) program.

R-1 SHOPPING LIST - Item No. 190

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **FEBRUARY 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME **0205633N Aviation Improvements**	PROJECT NUMBER AND NAME W0601 Common Ground Equipment

2. FY 2002 PLANS:

- (U) ($.377) Continue ABE program.

- (U) ($.500) Continue NGMH program.

- (U) ($2.350) Initiate Shaft Engine Test Instrumentation program.

- (U) ($.101) Portion of extramural program reserved for Small Business Innovation Research (SBIR) assessment in accordance with 15 USC 638.

3. FY 2003 PLANS:

- (U) ($2.194) Continue NGMH program.

- (U) ($1.250) Complete Shaft Engine Test Instrumentation program.

R-1 SHOPPING LIST - Item No. 190

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **FEBRUARY 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0205633N Aviation Improvements	W0601 Common Ground Equipment

(U) B. PROGRAM CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	3.224	3.358	
(U) Adjustments from the FY2002 President's Budget:	-0.428	-0.030	
(U) FY 2003 President Budget Submit:	2.796	3.328	3.444

CHANGE SUMMARY EXPLANATION

(U) Funding:

The FY 2001 net decrease of $.428 million is for reprioritization of requirements within the Navy. The FY 2002 decrease of $.030 million is for an undistributed congressional reduction.

(U) Schedule: Advanced Boresight Equipment (ABE)-FY2001, MSIII-FY2002, MSIII , Prior to MSIII, testing extended due to merging AH-1Z requirements.
Next Generation Munitions Handler (NGMH)-12/05 slipped to 12/06-Unforseen development initiatives between aircraft platforms and new weapons interface.
Joint Engine Test Initiative (JETI)-12/01 slipped to 03/02 due to unforseen additional required testing.

(U) Technical: Not Applicable

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete
APN 070500 Ground Support Eq	102.127	126.542	164.441	176.962	184.293	180.190	169.183	Continuing

Related RDT&E: Not Applicable

R-1 SHOPPING LIST - Item No. 190

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **FEBRUARY 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N / BA-7	0205633N Aviation Improvements	W0601 Common Ground Equipment	

(U) D. ACQUISITION STRATEGY: * This is a non-ACAT program. Field activities propose tentative RDT&E projects. Internal panel merits and selects projects. Field activities develop projects and submit results. Operational Advisory Group (OAG) process selects projects to transition to procurement (APN-7).

(U) E. SCHEDULE PROFILE:

	FY 2001	FY 2002	FY 2003	TO COMPLETE
(U) Program Milestones				
Advanced Boresight Equipment			12/02 MS III	
Next Generation Munitions Handler				12/06 (MSIII)
Joint Engine Test Initiative		03/02 (MS III)		
(U) Engineering Milestones				
(U) T&E Milestones				
Joint Engine Test Initiative	4/01 (DT)			
Shaft Engine Test Instrumentation			2/03 (DT)	
(U) Contract Milestones				
Joint Engine Test Initiative				
Advanced Boresight Equipment		01/02 (Contract Award)		

R-1 SHOPPING LIST - Item No. 190

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **FEBRUARY 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0205633N Aviation Improvements			PROJECT NUMBER AND NAME W0601 Common Ground Equipment							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Hardware Development	Various	Various	11.955	0.050	10/00	0.800	01/02	1.718	01/03	Continuing	Continuing	
Subtotal Product Development			11.955	0.050		0.800		1.718		Continuing	Continuing	
Remarks:												
Miscellaneous Support	Various	Various		2.012	01/01	2.127	01/02	1.726	12/02	Continuing	Continuing	
Subtotal Support				2.012		2.127		1.726		Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST - Item No. 190

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)

DATE: **FEBRUARY 2002**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-7**

PROGRAM ELEMENT: 0205633N Aviation Improvements

PROJECT NUMBER AND NAME: W0601 Common Ground Equipment

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Miscellaneous Test & Evaluation	Various	Various		0.734	01/01	0.300	01/02			Continuing	Continuing	
Subtotal T&E				0.734		0.300				Continuing	Continuing	

Remarks:

SBIR Assessment						0.101					0.101	
Subtotal Management						0.101					0.101	

Remarks:

Total Cost			11.955	2.796		3.328		3.444		Continuing	Continuing	

Remarks:

R-1 SHOPPING LIST - Item No. 190

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: FEBRUARY 2002			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0205633N Aviation Improvements					PROJECT NUMBER AND NAME W0852 Consolidated Automated Support System					
COST ($ in Millions)	Prior Year Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost			**7.845**	**6.682**	**6.757**	**6.740**	**6.707**	**6.805**	**6.914**	**Continuing**	**Continuing**
RDT&E Articles Qty											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Consolidated Automated Support System (CASS) project designs, and develops modular constructed automated test equipment with computer-assisted, multi-functional capability based, standardized hardware, and software elements. CASS responds to Fleet Commanders' expressed requirements to correct serious deficiencies in existing automatic test equipment. Program objectives are: (1) increase material readiness; (2) reduce life cycle costs through standarization; (3) improve tester sustainability at depot, and intermediate maintenance levels; (4) reduce proliferation of unique test equipment, and (5) provide test capability for existing and future avionics/electronics systems.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2001 ACOMPLISHMENTS:

- (U) ($7.000) Continued development of instrument control upgrades and virtual instruments (RTCASS).

- (U) ($ .845) Continued CASS station upgrades.

R-1 SHOPPING LIST - Item No. 190

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **FEBRUARY 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0205633N Aviation Improvements	W0852 Consolidated Automated Support System

3. FY 2002 PLANS:
- (U) ($4.747) Initiate development of a Synthetic Instrument Package.
- (U) ($1.733) Continue CASS station upgrades.
- (U) ($ .202) Portion of extramural program reserved for Small Business Innovation Research (SBIR) assessment in accordance with 15 USC 638.

4. FY 2003 PLANS:
- (U) ($3.829) Continue development of a Synthetic Instrument Package.
- (U) ($2.928) Continue CASS station upgrades.

(U) B. PROGRAM CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	7.890	6.741	
(U) Adjustments from the FY202 President's Bud	-0.045	-0.059	
(U) FY 2003 President's Budget Submit:	7.845	6.682	6.757

CHANGE SUMMARY EXPLANATION

(U) Funding:

The FY2001 net decrease of $ .045 million consist of a decrease of $.229 million for a Small Business Innovative Research Assessment (SBIR) and a decrease of $.057 million for reprioritization of requirements within the Navy offset by a $.241 million increase for continued CASS upgrades. The FY 2002 net decrease of $.059 million consist of a decrease of $.060 million for an undistributed congressional reduction offset by an increase of $.001 million for continued CASS upgrades.

(U) Schedule: Not Applicable

(U) Technical: Not Applicable

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete
APN 070500 CASS	120.054	105.145	90.588	93.381	76.972	90.111	91.852	Continuing

Related RDT&E: Not Applicable

R-1 SHOPPING LIST - Item No. 190

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **FEBRUARY 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0205633N Aviation Improvements	W0852 Consolidated Automated Support System

(U) D. ACQUISITION STRATEGY: The stragtegy for Parts Obsolescence is a combined effort with the contractor, any changes to present strategy will add additional risks to achieving a continuous production schedule, and will cause technical uncertainty. For new technologies we will have competitive studies to ascertain the market technology; which, will result in maximum information for minimum expenditure.

(U) E. SCHEDULE PROFILE:

	FY 2001	FY 2002	FY 2003	TO COMPLETE
(U) Program Milestones				
(U) Engineering Milestones				
(U) T&E Milestones				
(U) Contract Milestones				
RTCASS	4/01 (Contract Award)			
Synthetic Instrument Package		3/02 (Contract Award)	3/03 (Contract Award)	

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)

DATE: **FEBRUARY 2002**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-7**

PROGRAM ELEMENT: 0205633N Aviation Improvements

PROJECT NUMBER AND NAME: W0852 Consolidated Automated Support System

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Hardware Development	C/FFP	LMC	12.900	7.000	04/01	0.608	04/02			0.000	20.508	20.508
Hardware Development	Various	Various		0.845		1.125	01/02	2.928	01/03	Continuing	Continuing	
Hardware Development	Various	Various				4.747	03/02	3.829	03/03	Continuing	Continuing	
Subtotal Product Development			12.900	7.845		6.480		6.757		Continuing	Continuing	

Remarks:

Subtotal Support												

Remarks:

R-1 SHOPPING LIST - Item No. 190

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)									DATE: **FEBRUARY 2002**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0205633N Aviation Improvements			PROJECT NUMBER AND NAME W0852 Consolidated Automated Support System						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Subtotal T&E												
Remarks:												
SBIR Assessment						0.202					0.202	
Subtotal Management						0.202					0.202	
Remarks:												
Total Cost			12.900	7.845		6.682		6.757		Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST - Item No. 190

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: FEBRUARY 2002			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0205633N Aviation Improvements					PROJECT NUMBER AND NAME W1041 Aircraft Equipment Reliability/Maintainability Improvement Program (AERMIP)					
COST ($ in Millions)	Prior Years Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost			**0.735**	**0.622**	**0.620**	**0.631**	**0.534**	**0.540**	**0.546**	**Continuing**	**Continuing**
RDT&E Articles Qty											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

AERMIP is the only Navy program which provides Research, Development, Test & Evaluation (RDT&E) engineering support specifically for in-service, out-of-production aircraft equipment. AERMIP increases readiness through Reliability and Maintainability (R&M) and safety improvements to existing systems and equipment installed in Naval aircraft. It also provides a transition vehicle to deploy Total Ownership Cost (TOC) reduction initiatives through flight-test support and Fleet Test & Evaluation. It meets affordable readiness objectives by providing a cost-effective solution to obsolescence problems encountered when service lives are extended. AERMIP promotes commonality and standardization across aircraft platform lines and among the services through extension of application and use of non-developmental items. AERMIP also decreases life cycle costs through reduced operational and support costs. AERMIP facilitates the Operational, Safety and Improvement Program by applying proven low-risk solutions to current fleet problems. AERMIP also funds high priority flight testing which is not associated with any acquisition or development program under the Flight Test General (FTG) task.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2001 ACCOMPLISHMENTS:

- ($.735) Continued Total Ownership Cost (TOC) reduction corrosion initiatives. Completed the improved hydraulic seals investigation and validation project. Initiated the aircraft canopy crazing mitigation project. Investigated high value return on investment candidates and transition of TOC reduction initiatives.

2. FY 2002 PLANS:

- ($.603) Complete the Corrosion Preventative Compound initiative by developing a best practices plan to be implemented by all Naval Aircraft. Initiate the Common Instrument Program. Investigate high value pay back return on investment candidates and transition of TOC reduction initiatives.

- ($.019) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **FEBRUARY 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0205633N Aviation Improvements	W1041 Aircraft Equipment Reliability/Maintainability Improvement Program (AERMIP)

3. FY 2003 PLANS:

- ($.620) Continue the Common Instrument Program. Complete the aircraft canopy crazing mitigation project. Initiate the Corrosion Sensor initiative that will work in conjunction with the previously completed Corrosion Preventative Compound initiative to determine if corrosion sensors can be utilized in development of a condition based maintenance philosophy for corrosion preventative maintenance. Investigate high value pay back return on investment candidates and transition of TOC reduction initiatives.

(U) B. PROGRAM CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	0.739	0.628	
(U) Adjustments from the FY2002 President's Budget:	-0.004	-0.006	
(U) FY 2003 President's Budget Submit:	0.735	0.622	0.620

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY2001 decrease of $.004 consists of a $.002 million decrease for Small Business Innovative Research assessment and a $.002 million decrease for reprioritization of requirements within the Navy. The FY2002 decrease of $.006 is for an undistributed Congressional reduction.

(U) Schedule: Not applicable

(U) Technical: Not applicable

(U) C. OTHER PROGRAM FUNDING SUMMARY: Not applicable

(U) D. ACQUISITION STRATEGY: This is a non-ACAT program with no specific acquisition strategies.

(U) E. SCHEDULE PROFILE: Not applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: FEBRUARY 2002			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0205633N Aviation Improvements					PROJECT NUMBER AND NAME W1355 Aircraft Engine Component Improvement Program					
COST ($ in Millions)	Prior Years Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost			**36.963**	**30.431**	**30.094**	**37.588**	**28.065**	**31.571**	**32.098**	**Continuing**	**Continuing**
RDT&E Articles Qty											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Aircraft Engine Component Improvement Program (CIP) provides the only source of critical design and development engineering support to resolve safety, reliability and maintainability deficiencies of in-service Navy aircraft propulsion systems. The highest priority issues CIP addresses concern safety-of-flight deficiencies which account for approximately 80% of CIP efforts. The program also corrects service-revealed deficiencies, improves Operational Readiness (OR) and Reliability and Maintainability (R&M), and reduces platform Life Cycle Cost (LCC). Budgets are allocated across platform-specific teams and multi-platform product support teams based upon long term strategies to achieve safety and affordable readiness goals; the R-3 exhibit details annual portions of those long-term plans. CIP tasks have reduced the rate of in-flight aborts, safety incidents, non-mission capable rates, scheduled and unscheduled engine removals, maintenance work hours, and overall cost of ownership. This is accomplished through the maintenance and validation of specification performance, testing to qualify engineering changes, verifying life limits, and improving the inherent reliability of the propulsion system as an integral part of Reliability Centered Maintenance (RCM) initiatives. Historically, the missions, tactics, and environmental exposure of military aircraft systems change to meet new threats or operational demands, and often result in unforeseen problems, which if not corrected, can cause critical safety/readiness degradation, such as those experienced during DESERT SHIELD/DESERT STORM operations due to sand erosion. In addition, new problems arise through actual use during deployment of the aircraft. Development programs, while geared to resolve as many problems as possible before deployment, cannot duplicate actual operations or account for the vast array of environmental and usage variables, particularly when aircraft missions vary from those the aircraft was designed to perform. Therefore, it has been found that CIP can provide an immediate engineering response to these flight-critical problems and accelerated engine testing can avoid potential problems. CIP starts after development and Navy acceptance of the first production article and addresses usage and life problems not covered by warranties. CIP addresses engines, transmissions, propellers, starters, auxiliary power units, electrical generating systems, and fuel and lubricant systems. CIP efforts continue over the system's life, gradually decreasing to a minimum level sufficient to maintain the reliability, and decrease the operating costs, of older inventory. CIP is a highly leveraged and cooperative tri-service program with Foreign Military Sales participation.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2001 ACCOMPLISHMENTS:

(U) ($32.753) Platform-specific efforts:

T56 engine (P-3, E-2, C-2, C-130) Began and implemented the Engine Monitory System version 7.0 upgrade. Maintained safety margins by investigating turbine coatings and developed new designs, continued propeller integration efforts with potential propeller designs, performed engine hot section corrosion and fatigue analysis, and continued bearing improvements.

E-2/C-2/C-130 Began incorporation of improved blade heaters. Began development of improved propeller control system.

S-3 Completed new fan blade design. Completed safety related fan High Pressure Compressor (HPC) life limit analysis. Completed Main Fuel Control (MFC) durability investigation. Performed analyses on commercial hardware incorporation analyses. Continued validation and implementation on recommended part life changes.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **FEBRUARY 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0205633N Aviation Improvements	PROJECT NUMBER AND NAME W1355 Aircraft Engine Component Improvement Program

1. FY 2001 ACCOMPLISHMENTS (CONT):

F/A-18C/D Identified obsolescence problems, continued efforts on bushing, aft cooling plate, low pressure turbine nozzle and bolted dome combustor redesign efforts. Continued life management issues including the fleet leader program, engine analysis studies, and improved analytical models, analyzed engine performance data and updated mission analysis.

Mature Aircraft Addressed the top readiness degraders and AVDLR costs; implemented efforts on the J52 engine (EA-6B) ASMET test, performed annual maintenance awareness brief and annual P-408A major engine inspection program. Continued to study and implement solutions to aging aircraft issues and future obsolescence problems. Began redesign of diffuser case for increased life.

H-2/H-60 Completed integration of the improved Digital Electronic Control Unit (DECU) to the H-60 fleet. Completed implementation of I-level screening techniques for the DECU and Hydro-Mechanical units, continued the Advanced Helicopter Transmission Lubricant Program, extended transmission component lives, increased readiness by reducing corrosion, continued Mission Profile Data Collection and Dynamic Component Life Limit efforts. Continued time on wing and Mean Time Between Removals (MTBR) cost drivers initiatives including compressor durability, Titanium Nitrates (TiN) coating and three-stage turbine.

AV-8B Completed design efforts associated with the exhaust duct cracking, and failure of the Low Pressure Compressor (LPC) and HPT blade cracking and shaft sulfidation. Completed Shell Deer Park fuel burner rig testing to eliminate all risk associated with fuel incompatibility in the F402 engines. Addressed top readiness degraders and AVDLR costs; safety of flight issues, engine removal drivers, and mission failure drivers, assess life management program issues for engine components.

H-53/H-46/H-3 Started Bleed Valve redesign. Continued efforts on the top cause for engine removals; completed transition of program to reliability-centered maintenance; implemented goals at depot level to improve compressor performance and engine power, resolved oil consumption and leakage problems, and improved on wing times.

H-1 Addressed top safety concerns as ranked by the OAG and System Safety Working Group, continued to update Navy maintenance manuals, continued to improve time-between-overhaul and reduced impact of high-time parts. Continued improvement program to the Bleed Valve, T5 Harness, Gas Generator Case Diffuser Inlet, and Compressor Stub Shaft. Initiated development of environmentally friendly repairs such as High Velocity OXY fuel coatings to replace chrome and nickel plate repairs.

T-45 Continued investigation of engine vibration problems to resolve safety issue. Addressed platform safety, increase predicted part life confidence, provided mission profile updates and life cycle management. Continued Critical Parts Life management to ensure no overfly of parts, continued life management to double most expensive parts life, and addressed obsolescence issues.

F-14B/D Completed final life limit updates for F110-GE-400 engine. Continued High Pressure Compressor Spool life improve redesign. Addressed extension of component life and the reduction of maintenance hours. Continued improvements to propulsion system safety through an active life management program for critical rotating components, reduced the engine Non-recoverable In-Flight Shutdown Rate by 75% by 2003, reduced the propulsion system related mission abort rate by 50% by 2003.

(U) ($4.210) Multi-Platform Product Support Teams Continued projects designed to provide common support to multiple platforms in the areas of improved drive systems, secondary power and mechanical systems; improved tools for performance analysis, modeling and simulation, diagnostics, engine reliability assessment, and structural integrity; improved products and processes for fuels, lubricants, and refueling equipment; improved blade and vane repair processes and life cycle support; and improved electrical system product support and battery systems.

R-1 SHOPPING LIST - Item No. 190

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **FEBRUARY 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0205633N Aviation Improvements	W1355 Aircraft Engine Component Improvement Program

2. FY 2002 PLANS:

(U) ($24.611) Platform-specific efforts:

T56 engine (P-3, E-2, C-2, C-130) Continue the implementation of the Engine Monitory System version 7.0 upgrade. Maintain safety margins by investigating turbine coatings and develop new designs, continue propeller integration efforts with potential propeller designs, perform engine hot section corrosion and fatigue analysis, and continue bearing improvements.

E-2/C-2/C-130 Continue incorporation of improved blade heaters. Continue development of improved propeller control system.

S-3 Initiate High Pressure Compressor (HPC) life limit implementation. Continue validation and implementation of High Pressure Turbine (HPT), Low Pressure Turbine (LPT), and Fan critical part life limit changes. Initiate the development of Combustion Chamber Frame (CCF) and HPT physics based thermal models. Complete the development of LPT physics based thermal models. Collect engine parameter flight data required to perform updated engine mission analysis. Initiate the development of improved Eddy Current (EC) inspection techniques for small holes and specific features. Analyze and correlate HPC EC inspection requirements to critical part Fracture Mechanics (FM) capabilities. Investigate propulsion and power system obsolescence. Conduct engine component and propulsion and power electrical system reliability/maintainability analysis. Conduct commercial critical part hardware commonality analysis.

Mature Aircraft Address the top readiness degraders and AVDLR costs; implement efforts on the J52 engine (EA-6B) ASMET test, perform annual maintenance awareness brief and annual P-408A major engine inspection program. Continue to study and implement solutions to aging aircraft issues and future obsolescence problems. Continue redesign of diffuser case for increased life.

H-2/H-60 Continue the Advanced Helicopter Transmission Lubricant Program, extend transmission component lives, increase readiness by reducing corrosion, continue Mission Profile Data Collection and Dynamic Component Life Limit efforts. Continue time on wing and Mean Time Between Removals (MTBR) cost drivers initiatives including compressor durability, Titanium Nitrates (TiN) coating and three-stage turbine.

AV-8B Address top readiness degraders and AVDLR costs; safety of flight issues, engine removal and mission failure drivers, assess life management program issues for engine components. Projects will include but not be limited to: ASMET testing, support of a Fleet Leader Program, Analytical Condition Insepction (ACI), Engine Life Management Program (ELMP) execution and design fixes for any service revealed deficiencies.

H-53/H-46/H-3 Complete bleed valve redesign. Continue efforts on the top cause for engine removals; improve on wing times; address top safety concerns as ranked by the Operational Advisory Group (OAG); continue reliability-centered maintenance program; improve compressor blade retention design; and initiate development of corrosion resistant bearing designs.

H-1 Address top safety concerns as ranked by the OAG and System Safety Working Group, continue to update Navy maintenance manuals, continue to improve time-between-overhaul and reduce impact of high-time parts (T700 and T400); address Blisk, Rear Shaft, Spacer & Tierod Life Update (T700), Continue development of environmentally friendly repairs such as High Velocity OXY fuel coatings to replace chrome and nickel plate repairs; and initiate development of Durability Project (T700-401/-401C), N5 Blades w/ tip cap & Nozzles, T700 TiN Coating (Test Articles, Corrosion/Erosion/Full Sand Engine Testing), T700 Diagnostics Life Mgt Performance Evaluation (IMD), T700 Diagnostics (Performance Evaluation), Durability Project (T700-401/-401C), T700 TiN Coating (Pending Pass/Fail... Incorp TiN), EPAMs Mission Update to 4BN, T700 Diagnostics (Performance Evaluation), T400 Improved Compressor Turbine Stub Shaft, T400 Improved Gas Generator Case Diffuser Inlet, T400 Improved Compressor Coating, T400Life Management, Study T400 Parts Obsolescence.

F-14B/D Address obsolescence of electrical components. Continue high pressure turbine redesign efforts. Address extension of component life and the reduction of maintenance hours. Continue improvements to propulsion system safety through an active life management program for critical rotating components. Continue efforts to reduce the engine non-recoverable in-flight shutdown Rate and propulsion system related mission abort rate.

(**U) ($4.899) Multi-Platform Product Support Teams** Continue projects designed to provide common support to multiple platforms in the areas of improved drive systems, secondary power and mechanical systems; improved tools for performance analysis, modeling and simulation, diagnostics, engine reliability assessment, and structural integrity; improved products and processes for fuels, lubricants, and refueling equipment; improved blade and vane repair processes and life cycle support; and improved electrical system product support and battery systems.

(U) ($.921) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.

R-1 SHOPPING LIST - Item No. 190

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **FEBRUARY 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0205633N Aviation Improvements	PROJECT NUMBER AND NAME W1355 Aircraft Engine Component Improvement Program

3. FY 2003 PLANS:

(U) ($25.239) Platform-specific efforts:

T56 engine (P-3, E-2, C-2, C-130) Continue the implementation of the Engine Monitory System version 7.0 upgrade. Maintain safety margins by investigating turbine coatings and develop new designs, continue propeller integration efforts with potential propeller designs, perform engine hot section corrosion and fatigue analysis, and continue bearing improvements.

E-2/C-2/C-130 Continue incorporation of improved blade heaters. Continue development of improved propeller control system.

S-3 Perform reliability/maintainability analysis on engine components, propulsion and power electrical system addressing top readiness degraders and AVDLR cost drivers. Evaluate commercial hardware for TF34-400B applicability. Continue the development of Combustion Chamber Frame (CCF). Perform obsolence analysis on propulsion and power systems. Implement High Pressure Compressor field management plan. Continue validation and implementation of High Pressure Turbine (HPT), Low Pressure Turbine (LPT), and fan critical part field management plans. Using LPT physics based thermal models, continue the HPT physics based thermal models. Collect and analyze engine parameter flight data to update engine mission profiles. Develop improved Eddy Current (EC) inspection probes and techniques to minimize process time. Analyze and correlate HPC EC inspection requirements to critical part Fracture Mechanics (FM) capabilities.

Mature Aircraft Address the top readiness degraders and AVDLR costs; continue efforts on the J52 engine (EA-6B) ASMET test, perform annual maintenance awareness brief and annual P-408A major engine inspection program. Continue to study and implement solutions to aging aircraft issues and future obsolescence problems. Continue redesign of components for increased life.

H-2/H-60 Continue the Advanced Helicopter Transmission Lubricant Program, extend transmission component lives, increase readiness by reducing corrosion, continue Mission Profile Data Collection and Dynamic Component Life Limit efforts. Continue time on wing and Mean Time Between Removals (MTBR) cost drivers initiatives including compressor durability, Titanium Nitrates (TiN) coating and three-stage turbine.

AV-8B Address top readiness degraders and AVDLR costs; safety of flight issues, engine removal and mission failure drivers, assess life management program issues for engine components. Projects will include but not be limited to: ASMET testing, support of a Fleet Leader Program, Analytical Condition Insepction (ACI), Engine Life Management Program (ELMP) execution and design fixes for any service revealed deficiencies.

H-53/H-46/H-3 Continue efforts on the top cause for engine removals based on the latest metric and trending data available; improve on wing times; address top safety concerns as ranked by the Operational Advisory Group (OAG) and System Working Group (SSWG); continue reliability-centered maintenance program; improve compressor blade retention design; and continue development of corrosion resistant bearing designs. Initiate programs to improve the mean time between engine removal based upon continued implementation of reliability center maintenance initiatives. Conduct life management analyses to resolve critical rotating component issues based upon engine structural integrity assessments and the master life management plan.

H-1 Address top safety concerns as ranked by the OAG and System Safety Working Group, continue to update Navy maintenance manuals, continue to improve time-between-overhaul and reduce impact of high-time parts (T700 and T400); address Blisk, Rear Shaft, Spacer & Tierod Life Update (T700), Continue development of environmentally friendly repairs such as High Velocity OXY fuel coatings to replace chrome and nickel plate repairs; and initiate development of Durability Project (T700-401/-401C), N5 Blades w/ tip cap & Nozzles, T700 TiN Coating (Test Articles, Corrosion/Erosion/Full Sand Engine Testing), T700 Diagnostics Life Mgt Performance Evaluation (IMD), T700 Diagnostics (Performance Evaluation), Durability Project (T700-401/-401C), T700 TiN Coating (Pending Pass/Fail... Incorp TiN), EPAMs Mission Update to 4BN, T700 Diagnostics (Performance Evaluation), T400 Improved Compressor Turbine Stub Shaft, T400 Improved Gas Generator Case Diffuser Inlet, T400 Improved Compressor Coating, T400Life Management, Study T400 Parts Obsolescence.

F-14B/D Address obsolescence of electrical components. Complete high pressure turbine redesign efforts. Address extension of component life and the reduction of maintenance hours. Continue improvements to propulsion system safety through an active life management program for critical rotating components. Continue efforts to reduce the engine non-recoverable in-flight shutdown Rate and propulsion system related mission abort rate.

(U) ($4.855) Multi-Platform Product Support Teams Continue projects designed to provide common support to multiple platforms in the areas of improved drive systems, secondary power and mechanical systems; improved tools for performance analysis, modeling and simulation, diagnostics, engine reliability assessment, and structural integrity; improved products and processes for fuels, lubricants, and refueling equipment; improved blade and vane repair processes and life cycle support; and improved electrical system product support and battery systems.

R-1 SHOPPING LIST - Item No. 190

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **FEBRUARY 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0205633N Aviation Improvements	W1355 Aircraft Engine Component Improvement Program

(U) B. PROGRAM CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	38.622	30.702	
(U) Adjustments from the FY2002 President's Budget:	-1.659	-0.271	
(U) FY 2003 President's Budget Submit:	36.963	30.431	30.094

CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 2001 decrease of $1.659 million reflects a decrease of $.786 million for Small Business Innovative Research assessment and a decrease of $.873 million for reprioritization of requirements within the Navy.
FY 2002 decease of $.271 million reflects an undistributed congressional reduction.

(U) Schedule: Not applicable

(U) Technical: Not applicable

(U) C. OTHER PROGRAM FUNDING SUMMARY:

PE 0203752A (Aircraft Engine CIP Army)
PE 0207268F (Aircraft Engine CIP Air Force)
PE 0602236N (Turbine Engine Improvement, TOC, FNC)
PE 0603236N (Turbine Engine Improvement, TOC, FNC)
PE 0602114N (UAV Propulsion Autonomous Operations FNC)
PE 0603114N (UAV Propulsion Autonomous Operations FNC)

(U) D. ACQUISITION STRATEGY: Not applicable

(U) E. Schedule Pofile : Not applicable

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)

DATE: **FEBRUARY 2002**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-7**

PROGRAM ELEMENT: 0205633N Aviation Improvements

PROJECT NUMBER AND NAME: W1355 Aircraft Engine Component Improvement Program

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
F110 Engine Program*	SS/CPAF	GE - OHIO	12.786	1.890	12/00	2.100	12/01	2.100	12/02		18.876	18.876
F402 Engine Program	SS/CPFF	ROLLS ROYCE- UK	19.195	2.487	12/00	3.320	12/01	3.320	12/02		28.322	28.322
F404/T58/T64 Engine Programs	SS/CPFF	GE - MASS	20.873	7.813	04/01	1.672	10/01	1.672	10/02		32.030	32.030
J52 Engine Program	SS/CPFF	P&W - FLORIDA	6.406	2.500	12/00	2.600	12/01	2.600	12/02		14.106	14.106
T56 Engine Program	SS/CPFF	INDIANA	3.575	1.700	02/01	2.005	02/02	2.005	02/03		9.285	9.285
F405 Engine Program	SS/CPAF	ROLLS ROYCE- UK	4.544	1.940	12/00						6.484	6.484
F/A 18 E/F Engine Program	SS/CPFF	GE- MASS	0.664								0.664	0.664
T700 Engine Program	SS/CPFF	GE - MASS	3.092	1.050	11/00	1.255	01/02	1.255	01/03		6.652	6.652
TF34 Engine Program	SS/CPFF	GE - MASS	3.840	0.600	11/00	0.775	11/01	0.775	11/02		5.990	5.990
V22 Engine Program	SS/CPFF	GE- MASS	1.000								1.000	1.000
Props Program	SS/CPFF	HAM SUNSTRAND - CONN	3.395	1.000	12/00	1.155	12/01	1.155	12/02		6.705	6.705
Contracts under 1.0M aggregate	VARIOUS	VARIOUS	10.659	1.107	10/00	1.200	10/01	1.200	10/02	Continuing	Continuing	
Lab Field Activity (1.0M or more)	WX	NAWCAD-PAX	86.306	12.316	10/00	10.878	10/01	11.462	10/02	Continuing	Continuing	
Other in-house support (1.0M or less)	VARIOUS	VARIOUS	13.740	0.750	10/00	0.840	10/01	0.840	10/02	Continuing	Continuing	
GFP Fuel Increment	MIPR	KAFB - TEXAS	3.695	0.300	10/00	0.360	10/01	0.360	10/02	Continuing	Continuing	
Award Fees**	SS/CPAF			0.610		0.450		0.450		Continuing	Continuing	
Subtotal Product Development			193.770	36.063		28.610		29.194		Continuing	Continuing	

Remarks:

* F110 (F14 B/D) AF contract has a ten year period of performance.

**Award fees for F110 (.210), F402 (.240) and F405 (.160) F405 award fee in FY01 only.

R-1 SHOPPING LIST - Item No. 190

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)					DATE: **FEBRUARY 2002**							
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0205633N Aviation Improvmeents			PROJECT NUMBER AND NAME W1355 Aircraft Engine Component Improvement Program						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Other in-house less than 1.0M	VARIOUS	VARIOUS	3.146	0.650	10/00	0.650	10/01	0.650	10/02	Continuing	Continuing	
Subtotal Support			3.146	0.650		0.650		0.650		Continuing	Continuing	
Remarks:												
Other in-house less than 1.0M	VARIOUS	VARIOUS	2.394	0.150	10/00	0.150	10/01	0.150	10/02	Continuing	Continuing	
Subtotal T&E			2.394	0.150		0.150		0.150		Continuing	Continuing	
Remarks:												
Other in house less than 1.0M	VARIOUS	VARIOUS	0.397	0.100	10/00	0.100	10/01	0.100	10/02	Continuing	Continuing	
SBIR Assessment						0.921					0.921	
Subtotal Management			0.397	0.100		1.021		0.100		Continuing	Continuing	
Remarks:												
Total Cost			199.707	36.963		30.431		30.094		Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST - Item No. 190

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0205633N, Aviation Improvements					PROJECT NUMBER AND NAME W9109, Aircraft Aging Exploration Model Development					
COST ($ in Millions)	Prior Years Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost				**2.478**							**2.478**
RDT&E Articles Qty **Not Applicable**											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Aircraft AGE Exploration Model for Naval aircraft platforms. The model will use existing Naval aircraft data to establish connections between age and reliability, maintainability, and readiness and will provide the Navy with a valuable tool for understanding, predicting, and communicating impacts of decisions to extend aircraft service lives and for mitigating risks associated with these decisions.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

2. FY 2002 PLANS:

- (U) ($ 0.300) Analyze age impacts on multiple aircraft and aircraft systems to determine contributing factors to changes in reliability, maintainability and readiness.

- (U) ($ 1.808) Develop a computer model integrating with existing data systems to predict trends and impacts on aircraft reliability, maintainability and readiness as aircraft and systems age.

- (U) ($ 0.370) Perform failure analysis and model verification testing

R-1 SHOPPING LIST - Item No. 190

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0205633N, Aviation Improvements	W9109, Aircraft Aging Exploration Model Development

(U) B. PROGRAM CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:		0	
(U) Adjustments from the President's Budget:		2.478	
(U) FY 2003 President's Budget Submit:		2.478	

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2002 increase of $2.478 million reflects a congressional add for Aircraft AGE Exploration Model Development

(U) Schedule: Not applicable

(U) Technical: Not applicable

(U) C. OTHER PROGRAM FUNDING SUMMARY:
Aircraft Equipment Reliability/Maintainability Improvement Program, W1041

(U) D. ACQUISITION STRATEGY: This is a non-ACAT program with no specific acquisition strategies.

(U) E. SCHEDULE PROFILE: Not applicable

R-1 SHOPPING LIST - Item No. 190

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0205633N, Aviation Improvements			PROJECT NUMBER AND NAME W9109, Aircraft Aging Exploration Model Development							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Subtotal Product Development												
Software Development	SS/CPFF	ManTech				1.708	03/02				1.708	1.708
Technical Data	SS/CPFF	ManTech				0.010	03/02				0.010	0.010
GFE	SS/CPFF	ManTech				0.050	02/02				0.050	0.050
Subtotal Support						1.768					1.768	

Remarks:

R-1 SHOPPING LIST - Item No. 190

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0205633N, Aviation Improvements			PROJECT NUMBER AND NAME W9109, Aircraft Aging Exploration Model Development						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation												
Operational Test & Evaluation												
Subtotal T&E												
Remarks:												
Contractor Engineering Support	SS/CPFF	ManTech				0.220	02/02				0.220	0.220
Government Engineering Support	WX	NAWCAD				0.320	01/02				0.320	
Program Management Support	WX	NAWCAD				0.160	01/02				0.160	
Travel	WX	NAWCAD				0.010	01/02				0.010	
Subtotal Management						0.710					0.710	
Remarks:												
Total Cost						2.478					2.478	
Remarks:												

R-1 SHOPPING LIST - Item No. 190

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: **FEBRUARY 2002**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0205633N Aviation Improvements					PROJECT NUMBER AND NAME W9110 Nano-Composite Hard-Coat for Aircraft Coatings					
COST ($ in Millions)	Prior Years Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost				**1.388**							**1.388**
RDT&E Articles Qty											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Nano-Composite Hard-Coat for Aircraft coatings program will be used to investigate the use of Devitrified Nano-Composite Steel (DNC) as a potentially superior erosion coating for the T700 engine. The development of erosion coatings is critical to minimize the harsh erosive effects of the sandy environments encountered by our forces in Southwest Asia and other theaters of operations. Erosion effects are one of the primary drivers for T700 compressor stator-rotor assembly repair and replacement. The successful application of DNC may significantly improve T700 Operational Readiness (OR) and Reliability and Maintainability (R&M), and reduce platform Life Cycle Cost (LCC).

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2001 ACCOMPLISHMENTS:

(U) Not applicable

2. FY 2002 PLANS:

(U) ($1.388):
* Acquire 6 sets of: compressor stator-rotor assemblies, gas generator assemblies, miscellaneous hardware to build-up test engines.
* Coat and restore leading edges of compressor airfoils.
* Coat gas engerator turbine blades
* Build engines to 1.0 specifications.
* Operate two engines at the NAWCAD PAX Helicopter Transmission Test Facility for a transmission superfinish test and a simultaneous High Cycle Fatigue Test.
* Perform Sand Ingestion Testing on four engines; each with a select hardware configuration.

3. FY 2003 PLANS:

(U) Not applicable

R-1 SHOPPING LIST - Item No. 190

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **FEBRUARY 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0205633N Aviation Improvements	W9110 Nano-Composite Hard-Coat for Aircraft Coatings

(U) B. PROGRAM CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget :		0	
(U) Adjustments from the FY2002 President's Budget:		1.388	
(U) Fy 2003 President's Budget Submit:		1.388	

CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 2002 increase of $1.388 million reflects Congressional Add for Nano-Composite Hard-Coat for Aircraft Coatings.

(U) Schedule: Not applicable

(U) Technical: Not applicable

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Not applicable

(U) D. ACQUISITION STRATEGY: Not applicable

(U) E. Schedule Pofile : Not applicable

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **FEBRUARY 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0205633N Aviation Improvements			PROJECT NUMBER AND NAME W9110 Nano-Composite Hard-Coat for Aircraft Coatings							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Hardware/Engineering Support	SS/CPFF	GENERAL ELECTRIC				0.300	03/02				0.300	0.300
Contracts under 1.0M aggregate	VARIOUS	VARIOUS				0.723	03/02				0.723	0.723
Lab Field Activity (1.0M or less)	WX	VARIOUS				0.065	03/02				0.065	
Subtotal Product Development						1.088					1.088	

Remarks:

R-1 SHOPPING LIST - Item No. 190

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)											DATE: FEBRUARY 2002		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0205633N Aviation Improvmeents			PROJECT NUMBER AND NAME W9110 Nano-Composite Hard-Coat for Aircraft Coatings							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
Other in-house less than 1.0M	VARIOUS	VARIOUS				0.250	03/02				0.250		
Subtotal Support						0.250					0.250		
Remarks:													
Admin/Test Coordination	SS/CPFF	Concurrent Technol Corp				0.050	03/02				0.050	0.050	
Subtotal T&E						0.050					0.050	0.050	
Remarks:													
Subtotal Management													
Remarks:													
Total Cost						1.338					1.338	1.338	
Remarks:													

R-1 SHOPPING LIST - Item No. 190

FY 2003 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: February 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205658N
PROGRAM ELEMENT TITLE: NAVAL FLEET/FORCE TECHNOLOGY INNOVATION OFFICE

(U) (COST): (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 2001 ACTUAL	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
R0834 Laboratory Fleet Support	*7,018	4,901	4,801	4,923	4,770	4,865	4,964	CONT.	CONT.
R2371 Lash Hyperspectral	*9,690	4,262	-	-	-	-	-	-	49,000
R2701 Lash Study	*8,721	5,055	-	-	-	-	-	-	14,770
R9111 Littoral/Mine Countermeasures Rapid Response	-	4,262	-	-	-	-	-	-	4,262
	* 25,429	18,480	4,801	4,923	4,770	4,865	4,964	CONT.	CONT.

* Funding was executed in PE 0603238N.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The purpose of the Naval Fleet/Force Technology Innovation Office (NFFTIO) is to ensure that the Fleet/Force (F/F) helps shape the Department of the Navy (DoN) investment in Science and Technology (S&T), develop teaming relationships to rapidly demonstrate and transition technology, support development of technology-based capability options for naval forces, and enable warfighting innovations based on technical and conceptual possibilities. This is accomplished through proactive connectivity and collaboration between DoN S&T and Joint, Navy, and Marine Corps commands worldwide. The program accomplishes this through several methods. It provides on-the-spot Naval Research Science Advisors (NRSAs) Joint, Navy, and Marine Corps operational and strategic planning commands worldwide. In addition, NFFTIO facilitates and disseminates Command Capability Issues (CCIs) provided by the F/F Commanders to the Director of Navy Test and Evaluation and Technology Requirements (OPNAV N091). NFFTIO also collaborates with the F/F to identify specific solutions to known operational capability needs and provides the means to develop and demonstrate prototype systems. The result is that NFFTIO provides insight into issues associated with Naval Warfighting Capabilities,

thereby influencing long term S&T programs. The program also develops a cadre of civilian scientists and engineers who, upon completion of their NFFTIO NRSA tours, return to the Naval technical community with first hand knowledge of the F/F and warfighting issues. NFFTIO enables a continuous collaboration between the warfighters, the technical community, and strategic development commands.

(U) PROGRAM CHANGE FOR TOTAL P.E.:

	FY 2001	FY 2002	FY 2003
(U) FY 2002 President's Budget:	23,557	4,945	
Execution Adjustment	+2,286		
Congressional Plus-Ups		+13,700	
Section 8123: Management Reform Initiative		- 165	
SBIR	- 414		
(U) FY 2003 President's Budget Submission:	25,429	18,480	4,801

(U) CHANGE SUMMARY EXPLANATION:

(U) Schedule: Not applicable

(U) Technical: Not applicable

FY 2003 BUDGET ITEM JUSTIFICATION SHEET DATE: February 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205658N
PROGRAM ELEMENT TITLE: NAVAL FLEET/FORCE TECHNOLOGY INNOVATION OFFICE

(U) (COST): (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 2001 ACTUAL	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
R0834 Laboratory Fleet Support	* 7,018	4,901	4,801	4,923	4,770	4,865	4,964	CONT.	CONT.

* Funding was executed in PE 0603238N.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The purpose of the Naval Fleet/Force Technology Innovation Office (NFFTIO) is to ensure that the Fleet/Force (F/F) helps shape the Department of the Navy (DoN) investment in Science and Technology (S&T), develop teaming relationships to rapidly demonstrate and transition technology, support development of technology-based capability options for naval forces, and enable warfighting innovations based on technical and conceptual possibilities. This is accomplished through proactive connectivity and collaboration between DoN S&T and Joint, Navy, and Marine Corps commands worldwide. The program accomplishes this through several methods. It provides on-the-spot Naval Research Science Advisors (NRSAs) Joint, Navy, and Marine Corps operational and strategic planning commands worldwide. In addition, NFFTIO facilitates and disseminates Command Capability Issues (CCIs) provided by the F/F Commanders to the Director of Navy Test and Evaluation and Technology Requirements (OPNAV N091). NFFTIO also collaborates with the F/F to identify specific solutions to known operational capability needs and provides the means to develop and demonstrate prototype systems. The result is that NFFTIO provides insight into issues associated with Naval Warfighting Capabilities, thereby influencing long term S&T programs. The program also develops a cadre of civilian scientists and engineers who, upon completion of their NFFTIO NRSA tours, return to the Naval technical community with first hand knowledge of the F/F and warfighting issues. NFFTIO enables a continuous collaboration between the warfighters, the technical community, and strategic development commands.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it leverages long-term S&T investments to meet operational capability needs, it collaborates with the F/F to identify specific solutions to known operational capability needs, and provides some means to develop and demonstrate prototype systems.

FY 2003 BUDGET ITEM JUSTIFICATION SHEET DATE: February 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205658N PROJECT NUMBER: R0834
PROGRAM ELEMENT TITLE: NAVAL FLEET/FORCE TECHNOLOGY INNOVATION OFFICE PROJECT TITLE: LAB FLT SUPPORT

(U) PROGRAM ACCOMPLISHMENTS AND PLANS

1. (U) FY 2001 ACCOMPLISHMENTS:

(U) (7,018) Facilitated and disseminate the CCIs provided by the F/F Commanders. Leveraged investments to provide on the spot NRSAs to Joint, Navy, and Marine Corps operational and strategic planning commands worldwide. Assisted NRSAs in obtaining working experience with high-level decision-makers and operators in an effort to develop technologies for transition to the F/F. Collaborated with the F/F to identify specific solutions to known operational capability needs and provided the means to develop and demonstrate prototype systems. Helped move S&T to the operational F/F rapidly, leveraged long-term S&T investments to meet operational F/F capability needs, and provided a method for the Research, Development, Testing and Evaluation (RDT&E) community to surge in response to real world crises. Transitioned the technology insertions that were initiated in prior years to operational use and acquisition programs.

2. (U) FY 2002 PLAN:

(U) (4,901) Facilitate and disseminate the CCIs provided by the F/F commanders. Leverage the investment to provide on the spot NRSAs to Joint, Navy, and Marine Corps operational and strategic planning commands worldwide. Assist these NRSAs to obtain experience working with high-level decision-makers and operators to develop technologies for transition to the F/F. Collaborate with the F/F to identify specific solutions to known operational capability needs and provide the means to develop and demonstrate prototype systems. Help move S&T to the operational F/F rapidly, leverage long-term S&T investments to meet operational F/F capability needs, and provide a method for the RDT&E community to surge in response to real world crises. Transition the technology insertions that were initiated in prior years to operational use and acquisition programs.

3. (U) FY 2003 PLAN:

(U) (4,801) Facilitate and disseminate the CCIs provided by the F/F commanders. Leverage the investment to provide on the spot NRSAs to Joint, Navy, and Marine Corps operational and strategic planning commands worldwide. Assist these NRSAs to obtain experience working with high-level decision-makers and operators to develop technologies for transition to the F/F. Collaborate with the F/F to identify specific solutions to known operational capability needs and provide the means to develop and demonstrate prototype systems. Help move S&T to the operational F/F rapidly, leverage long-term S&T investments to meet operational F/F capability needs,

and provide a method for the RDT&E community to surge in response to real world crises. Transition the technology insertions that were initiated in prior years to operational use and acquisition programs.

B. (U) OTHER PROGRAM FUNDING SUMMARY:

(U) RELATED RDT&E:

(U) PE 0601152N In-House Lab Independent Research
(U) PE 0601153N Defense Research Sciences
(U) PE 0602114N Power Projection Applied Research
(U) PE 0602123N Force Protection Applied Research
(U) PE 0602131M Marine Corps Landing Force Tech
(U) PE 0602235N Common Picture Applied Research
(U) PE 0602236N Warfighter Sustainment Applied Research
(U) PE 0602271N RF Systems Applied Research
(U) PE 0602435N Ocean Warfighting Environment Applied Research
(U) PE 0602747N Undersea Warfare Applied Research
(U) PE 0602782N Mine & Expeditionary Warfare Applied Research
(U) PE 0603114N Power Projection Advanced Tech
(U) PE 0603123N Force Protection Advance Tech
(U) PE 0603235N Common Picture Advanced Technology
(U) PE 0603236N Warfighter Sustainment Advance Tech
(U) PE 0603271N RF Systems Advanced Tech

FY 2003 BUDGET ITEM JUSTIFICATION SHEET DATE: February 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205658N PROGRAM ELEMENT TITLE: NAVAL FLEET/FORCE TECHNOLOGY INNOVATION OFFICE

PROJECT NUMBER: R0834
PROJECT TITLE: LAB FLT SUPPORT

(U) PE 0603640M MC Advance Tech Demo
(U) PE 0603727N Joint Experimentation
(U) PE 0603729N Warfighter Protection Advanced Tech
(U) PE 0603747N Undersea Warfare Advanced Technology
(U) PE 0603758N Navy Warfighting Experiments & Demo
(U) PE 0603782N Mine & Expeditionary Warfare Advanced Tech

C. (U) SCHEDULE PROFILE: Not applicable.

FY 2003 BUDGET ITEM JUSTIFICATION SHEET DATE: February 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205658N
PROGRAM ELEMENT TITLE: NAVAL FLEET/FORCE TECHNOLOGY INNOVATION OFFICE

CONGRESSIONAL PLUS-UPS

This section describes the following Congressional Plus-Ups which were in this program element. FY2001 Plus-Ups were executed in Program Element 0603238:

Littoral Airborne Sensor/Hyperspectral (LASH), Littoral/Mine Countermeasures Rapid Response, Range Airship/LASH Study for Range Enhancements

1. FY 2001 Congressional Plus-ups:

- (U) ($10,000), Littoral Airborne Sensor/Hyperspectral (LASH) – Funds provided focused on the improvements to target detection signal to noise ratios and reduction of false alarms due to environmental clutter. The LASH sensor participated in fleet exercises with Seventh Fleet to test improvements under real conditions with cooperative targets. Program objectives were guided by CINCPACFLT capability metrics, and a test to meet those requirements was conducted. The analysis of this significant program milestone is underway. Other tests of the LASH sensor's ability to distinguish overland, littoral targets were conducted. Efforts to design and construct a hyperspectral system based upon the existing LASH sensor, but now effective against near shore antipersonnel mine fields are underway (executed in PE 0603238N).

- U) ($8,721), Range Airship/LASH Study for Range Enhancements – Funds provided focused on project initiation, contract negotiation, and preliminary design efforts. Naval capability metrics provided objectives for design of the airship. This effort will design a new class of airship that is larger and has greater payload capabilities than previous classes (6500 Ib). Close coordination has been developed with Commander, Naval Region, Hawaii. Progress was dominated by a false start by the prime contractor to initiate the detailed design of the airship (executed in PE 0603238N).

FY 2003 BUDGET ITEM JUSTIFICATION SHEET DATE: February 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205658N
PROGRAM ELEMENT TITLE: NAVAL FLEET/FORCE TECHNOLOGY INNOVATION OFFICE

1. FY 2002 Congressional Plus-ups

- (U) ($4,300), Littoral Airborne Sensor/Hyperspectral (LASH) – Funds provided will develop the LASH hyperspectral sensor to improve ASW metrics by reducing false alarms due to environmental clutter. Improvements to detection algorithms will be made through a systematic addressing of the most prevalent false alarm signatures. Testing during fleet exercises will continue, and CINCPACFLT will be consulted to update the capability metrics. Overland testing will determine the value of this over water sensor to use for land targets and to discriminate against land clutter.

- (U) ($4,262), Littoral/Mine Countermeasures Rapid Response – Funds provided will augment the development of a hyperspectral based, airborne sensor for near shore minefield classification. Funds will incorporate improved Navigation/Stabilization system capabilities into the Pod/Sensor system. Data collection flights will be performed to facilitate automatic detection algorithm development. Participation by the new LASH sensor in Exercise Millennium Challenge with the Navy's Very Shallow Water Detachment will be conducted to detect mines in the VSW and Surf Zone and to test capabilities against metrics determined in concert with OPNAV, Navy acquisition, and Marine Corps Systems Command.

- (U) ($5,055), Range Airship/LASH Study for Range Enhancements – Funds provided will contribute to the design of a new class of airship for naval range surveillance at Pacific Missile Test Facility and for base protection at Pearl Harbor. The new platform will be used to deploy other emerging sensors such as the LASH hyperspectral pod, and communications and networking technologies. The airship handling, lifting, and maneuver characteristics will be tested during demonstrations of the airship in Hawaii water fleet exercises.

FY 2003 BUDGET ITEM JUSTIFICATION SHEET DATE: February 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205658N PROJECT NUMBER: R0834
PROGRAM ELEMENT TITLE: NAVAL FLEET/FORCE TECHNOLOGY INNOVATION OFFICE PROJECT TITLE: LAB FLT SUPPORT

Exhibit R-3 Cost Analysis (page 1)											Date: February 2002
APPROPRIATION/BUDGET ACTIVITY RDT&E,N 7			PROGRAM ELEMENT 0205658N						PROJECT NAME AND NUMBER Lab Flt Support R0834		
Cost Categories	Contract Method & Type	Performing Activity & Location	FY-01 Cost	FY-01 Award Date	FY-02 Cost	FY-02 Award Date	FY-03 Cost	FY-03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Product Development*	Various	Various	*7,018	TBD	4,901	TBD	4,801	TBD	Cont.	Cont.	Cont.
Subtotal Product Development			*7,018		4,901		4,801		Cont.	Cont.	Cont.
Remarks: *Funding was executed in PE 0603238N											
Total Cost			7,018		4,901		4,801		Cont.	Cont.	Cont.

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification									DATE: **February 2002**		
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-07**						R-1 ITEM NOMENCLATURE 0205667N F-14 Upgrade					
COST ($ in Millions)	Prior Year Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost	**1,824.365**		**10.974**	**1.487**							**1,836.826**
E1408 F-14 Upgrade	**1,824.365**		***10.974**								**1,835.339**
E9112 TACL SAR Pod				**1.487**							**1.487**
Quantity of RDT&E Articles **Not Applicable**											

* The FY2001 budget reflects Congressional Adds of $9.000 million for Synthetic Aperture Radar Reconnaisance system demonstration executed under E2984 and $1.000 million for Radar Warning Receiver Antenna Replacement and system enhancement executed under E2985. These Congressional Adds were decreased by $.301 million and $.033 million respectively for Congressional undistributed reductions. The FY 2002 budget reflects a $1.500 million Congressional add for the Tactical All Weather Collection Long Range (TACL) Synthetic Aperture Radar Reconnaisance system (SAR) Pod which has been reduced by $.013 million for undistributed Congressional reductions.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program element provides for the development of improvements to the Navy F-14 squadrons in order to counter the projected threat through the year 2001. The F-14D has increased capability in three major areas: new engine, new digital avionics, and upgraded radar. These changes yield significant improvements in capability and performance, as well as reliability and maintainability, and will facilitate the total integration and exploitation of related programs i.e., Joint Tactical Information Distribution System (JTIDS), Infrared Search and Track System (IRST), and inclusion of Airborne Self-Protection Jammer (ASPJ) in the electronic warfare (EW) suite for the F-14D operational evaluation. A Pre-deployment Update (PDU) program (primarily software) includes air-to-ground ordnance delivery capability, full Link 16 capability, and radar/Electronic Counter-Countermeasures (ECCM) improvements for the F-14D. The PDU program was created because of concurrent development of the F-14D and the above listed common avionics and weapons. It implements the capabilities inherent in systems incorporated during the full scale development (FSD) program and is a planned integral part of the evolution of the F-14D aircraft. F-14 weapons integration supports integration of EW improvements and correction of OPEVAL deficiencies. Funding is also provided for various software upgrades such as Global Positioning System, and accommodates the realignment of Aviation Depot Level Repairables (AVDLR) from Major Range and Test Facility Bases to direct project funding. FY2001 includes a Congressional plus up of $9 million for Synthetic Aperture Radar (SAR) Pod. These funds were used to demonstrate a podded SAR system on the F-14. Additionally, a $1 million Congressional plus up is included for Radar Warning Receiver (RWR) Antenna Replacement and System Enhancement. These funds were used to fund the research, development and test costs associated with procuring new RWR antennas system upgrade. The FY 2002 Congressional increase for TACL SAR will be used to conduct flight demonstrations of X-BAND High Resolution Synthetic Aperture Radar (SAR) Pod.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

R-1 SHOPPING LIST - Item No. 192

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: **Febrary 2002**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-07**	PROGRAM ELEMENT NUMBER AND NAME 0205667N F-14 Upgrade					PROJECT NUMBER AND NAME E1408 F-14 Upgrade					
COST ($ in Millions)	Prior Year Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**1,824.365**		***10.974**								**1,835.339**
RDT&E Articles Qty **Not applicable**											

* * The FY2001 budget reflects Congressional Adds of $9.000 million for Synthetic Aperture Radar Reconnaisance system demonstration executed under E2984 and $1.000 million for Radar Warning Receiver Antenna Replacement and system enhancement executed under E2985. These Congressional Adds were decreased by $.301 million and $.033 million respectively for Congressional undistributed reductions.

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program element provides for the development of improvements to the Navy F-14 squadrons in order to counter the projected threat through the year 2000 and beyond. The F-14D has increased capability in three major areas: new engine, new digital avionics, and upgraded radar. These changes yield significant improvements in capability and performance, as well as reliability and maintainability, and will facilitate the total integration and exploitation of related programs i.e., Joint Tactical Information Distribution System (JTIDS), Infrared Search and Track System (IRST), and inclusion of Airborne Self-Protection Jammer (ASPJ) in the electronic warfare (EW) suite for the F-14D operational evaluation. A Pre-deployment Update (PDU) program (primarily software) includes air-to-ground ordnance delivery capability, full Link 16 capability, and radar/Electronic Counter-Countermeasures (ECCM) improvements for the F-14D. The PDU program was created because of concurrent development of the F-14D and the above listed common avionics and weapons. It implements the capabilities inherent in systems incorporated during the full scale development (FSD) program and is a planned integral part of the evolution of the F-14D aircraft. F-14 weapons integration supports integration of EW improvements and correction of OPEVAL deficiencies. Funding is also provided for various software upgrades such as Global Positioning System, and accommodates the realignment of Aviation Depot Level Repairables (AVDLR) from Major Range and Test Facility Bases to direct project funding. FY2001 includes a Congressional plus up of $9.000 million for Synthetic Aperture Radar (SAR) Pod. These funds were used to demonstrate a podded SAR system on the F-14. Additionally, a $1.000 million Congressional plus up is included for Radar Warning Receiver (RWR) Antenna Replacement and System Enhancement. These funds were used to fund the research, development and test costs associated with procuring new RWR antennas system upgrade.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2001 ACCOMPLISHMENTS:

- (U) ($1.308) Procured Aviation Depot Level Repairables for testing of aircraft.
- (U) ($8.699) Demonstrated Synthetic Aperture Radar Pod on F-14.
- (U) ($0.967) Procured new Radar Warning Receiver Antenna Replacement and System Enhancement.

R-1 SHOPPING LIST - Item No. 192

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-07**	PROGRAM ELEMENT NUMBER AND NAME 0205667N F-14 Upgrade	PROJECT NUMBER AND NAME E1408 F-14 Upgrade

(U) B. PROGRAM CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	11.122		
(U) Adjustments from the FY2002 President's Budget:	-0.148		
(U) FY 2003 President's Budget Submit:	10.974		

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY2001 net decrease of $.148 million consists of a $.243 million decrease for a Small Business Innovative Reseach assessment and a decrease of $.029 million for reprioritization of requirements within the Navy offset by a $.124 million increase for Strike Master Plan.

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete
APN-5	27.8	6.9	3.7	0	0	0	0	0

(U) Related RDT&E:
(U) PE 0205604N (Tactical Data Links)
(U) PE 0604270N (EW Development)

R-1 SHOPPING LIST - Item No. 192

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-07	0205667N F-14 Upgrade	E1408 F-14 Upgrade

(U) D. ACQUISITION STRATEGY: Not applicable.

(U) E. SCHEDULE PROFILE: Not applicable.

R-1 SHOPPING LIST - Item No. 192

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-07**		PROGRAM ELEMENT 0205667N F-14 Upgrade				PROJECT NUMBER AND NAME E1408 F-14 Upgrade						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
AMRAAM Int.	SS/CPFF	Northrup Grumman,	9.924								9.924	9.924
		Bethpage, NY										
BLK 1/JDAM	SS/CPFF	Northrup Grumman,	6.506								6.506	6.506
		Bethpage, NY										
FSD Cont	SS/CPFF	Northrup Grumman,	994.378								994.378	994.378
		Bethpage, NY										
PDU	WX	NAWC Pt. Mugu CA	219.984								219.984	
Miscellaneous - Contracts	Various	Various	3.154								3.154	3.154
Miscellaneous - In House	Various	Various	26.650								26.650	
Repair of Repairables	WX	Various	11.078								11.078	
FY95 and other			551.354								551.354	
RWR (Congressional plus up)	SS/FFP	BAE, Lansdale, PA		0.967	06/01						0.967	0.967
SAR (Congressional plus up)	SS/FFP	Raytheon, El Segundo, CA		4.150	08/01						4.150	4.150
SAR (Congressional plus up)	WX	NAWCAD, Pax River, MD		0.727	06/01						0.727	
Subtotal Product Development			1,823.028	5.844							1,828.872	

Remarks:

R-1 SHOPPING LIST - Item No. 192

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-07**		PROGRAM ELEMENT 0205667 F-14 Upgrade			PROJECT NUMBER AND NAME E1408 F-14 Upgrade							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
PDU Systems Engineering/Test	WX	NAWC Pt Mugu CA	1.337	1.313	12/00						2.650	
and Evaluation												
SAR (Congressional plus up)	SS/FFP	Lockheed Martin, Orlando FL		3.286	08/01						3.286	3.286
SAR (Congressional plus up)	WX	NAWCAD, Pax River, MD		0.531	06/01						0.531	
Subtotal T&E			1.337	5.130							6.467	
Remarks:												
Subtotal Management												
Remarks:												
Total Cost			1,824.365	10.974							1,835.339	
Remarks:												

R-1 SHOPPING LIST - Item No. 192

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: Febrary 2002			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-07**	PROGRAM ELEMENT NUMBER AND NAME 0205667N F-14 Upgrade					PROJECT NUMBER AND NAME E9112 TACL SAR					
COST ($ in Millions)	Prior Year Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost				***1.487**							**1.487**
RDT&E Articles Qty **Not applicable**											

* The FY 2002 budget reflects a $1.500 million Congressional add for the Tactical All Weather Collection Long Range (TACL) Synthetic Aperture Radar Reconnaisance system (SAR) Pod which has been decreased by .013 million for an Undistributed Congressional reduction.

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program element provides for the development of improvements to the Navy F-14 squadrons in order to counter the projected threat through the year 2000 and beyond. The F-14D has increased capability in three major areas: new engine, new digital avionics, and upgraded radar. These changes yield significant improvements in capability and performance, as well as reliability and maintainability, and will facilitate the total integration and exploitation of related programs i.e., Joint Tactical Information Distribution System (JTIDS), Infrared Search and Track System (IRST), and inclusion of Airborne Self-Protection Jammer (ASPJ) in the electronic warfare (EW) suite for the F-14D operational evaluation. A Pre-deployment Update (PDU) program (primarily software) includes air-to-ground ordnance delivery capability, full Link 16 capability, and radar/Electronic Counter-Countermeasures (ECCM) improvements for the F-14D. The PDU program was created because of concurrent development of the F-14D and the above listed common avionics and weapons. It implements the capabilities inherent in systems incorporated during the full scale development (FSD) program and is a planned integral part of the evolution of the F 14D aircraft. F-14 weapons integration supports integration of EW improvements and correction of OPEVAL deficiencies. The FY 2002 Congressional increase for TACL SAR will be used to conduct flight demonstrations of X-BAND High Resolution Synthetic Aperture Radar (SAR) Pod.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2002 PLANS:

- (U) ($1.487) Conduct flight demonstrations of X-BAND High Resolution Synthetic Aperture Radar Reconnaissance system Pod on F-14.

R-1 SHOPPING LIST - Item No. 192

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-07	0205667N F-14 Upgrade	E9112 TACL SAR

(U) B. PROGRAM CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:		0.000	
(U) Adjustments from the FY2002 President's Budget:		1.487	
(U) FY 2003 President's Budget Submit:		1.487	

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2002 net increase of $1.487 million consists of a Congressional Add in the amount of $1.500 million for the Tactical All Weather Collection Long Range (TACL) Synthetic Aperture Radar (SAR) Pod offset by a decrease of .013 for Undistributed Congressional reduction.

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete
APN-5	27.8	6.9	3.7	0	0	0	0	0

(U) Related RDT&E:
(U) PE 0205604N (Tactical Data Links)
(U) PE 0604270N (EW Development)

R-1 SHOPPING LIST - Item No. 192

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-07	0205667N F-14 Upgrade	E9112 TACL SAR

(U) D. ACQUISITION STRATEGY: Not applicable.

(U) E. SCHEDULE PROFILE: Not applicable.

R-1 SHOPPING LIST - Item No. 192

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-07**			PROGRAM ELEMENT 0205667N F-14 Upgrade			PROJECT NUMBER AND NAME E9112 TACL SAR Pod						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Subtotal Product Development												

Remarks:

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2) | DATE: **February 2002**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-07** | PROGRAM ELEMENT: 0205667 F-14 Upgrade | PROJECT NUMBER AND NAME: E9112 TACL SAR Pod

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
TACL SAR (Congressional plus up)	SS/FFP	Lockheed Martin, Orlando FL				1.187	04/02				1.187	1.187
TACL SAR (Congressional plus up)	WX	NAWCWD Pt. Mugu, CA				0.300	04/02				0.300	
Subtotal T&E						1.487					1.487	
Remarks:												
Subtotal Management												
Remarks:												
Total Cost						1.487					1.487	
Remarks:												

R-1 SHOPPING LIST - Item No. 192

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification						DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**			PROGRAM ELEMENT (PE) NAME AND NO. **0206313M Marine Corps Communications Sys**						
COST ($ in Millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost	**96.438**	**119.716**	**174.664**	**163.920**	**96.349**	**90.363**	**74.779**	**Cont**	**Cont**
C2270 Command Post Systems	**21.500**	**24.755**	**29.594**	**22.510**	**19.554**	**18.638**	**18.651**	**Cont**	**Cont**
C2271 Maneuver C2 Systems	**1.647**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**1.647**
C2272 Intelligence C2 Systems	**6.483**	**18.286**	**19.900**	**16.424**	**19.097**	**17.444**	**9.822**	**Cont**	**Cont**
C2273 Air Operations C2 Systems	**24.261**	**24.074**	**63.320**	**65.786**	**18.464**	**21.219**	**18.398**	**Cont**	**Cont**
C2274 Warfare Systems	**7.077**	**9.147**	**5.732**	**4.209**	**5.076**	**5.636**	**5.025**	**Cont**	**Cont**
C2275 Radio Systems	**0.000**	**0.000**	**0.597**	**1.393**	**1.787**	**0.991**	**0.990**	**Cont**	**Cont**
C2276 Communications Switching & Control Systems	**0.186**	**0.969**	**4.766**	**0.602**	**0.603**	**0.603**	**0.604**	**0.000**	**8.333**
C2277 System Engineering & Integration	**10.084**	**13.244**	**9.912**	**11.810**	**11.011**	**12.619**	**11.857**	**Cont**	**Cont**
C2278 Air Defense Weapons Systems	**13.633**	**11.135**	**29.831**	**36.146**	**16.968**	**10.980**	**7.178**	**Cont**	**Cont**
C2315 Training Devices/Simulators	**10.496**	**13.548**	**6.145**	**4.464**	**3.208**	**1.642**	**1.652**	**Cont**	**Cont**
C2510 MAGTF CSSE & SE	**1.071**	**4.558**	**4.867**	**0.576**	**0.581**	**0.591**	**0.602**	**Cont**	**Cont**
Quantity of RDT&E Articles									

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This program element provides funding to develop the command and control (C2) support and information infrastructures for the Fleet Marine Force and supporting establishment. Doctrinally, the C2 support system and the information infrastructure form two parts of a triad of capabilities which permits command and control systems to be transformed into a complete operating system. The third element of the triad is command and control organization and is not covered in this program element. USMC command and control is divided into six functional areas and one supporting functional area as follows: maneuver C2, intelligence C2, fire support C2, air operations C2, radio systems C2, combat service support C2, warfare C2, and C2 support (information processing and communications).

Within this program element, subprojects have been grouped by C2 functional area for more efficient planning. Air defense weapons systems have been added to facilitate planning and a separate project is used for systems assigned to the supporting establishment. Subprojects which support the commander's decision processes have been collected into the Command Post Systems project since these systems must work in close cooperation to ensure effective C2 of Marine Air Ground Task Forces. The Coastal Battlefield Reconnaissance and Analysis (COBRA) system is a passive multi-spectral sensor system capable of operating in a PIONEER unmanned aerial vehicle (UAV). Imagery recorded on the UAV or disseminated via data link is analyzed by the COBRA ground station. Ground station algorithm processing provides near real-time automatic minefield detection with Differential Global Positioning System (DGPS) location accuracy.

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT (PE) NAME AND NO. **0206313M Marine Corps Communications Sys**

This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

B. PROGRAM CHANGE SUMMARY

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	107.102	104.835	
(U) Adjustments from the President's Budget:			
(U) SBIR/STTR Transfer	-1.991		
(U) Execution Adjustment	-0.852		
(U) Minor Affordability Adjustment		-1.119	
(U) Program Adjustment	-7.821	16.000	
(U) FY 2003 President's Budget:	96.438	119.716	174.664

CHANGE SUMMARY EXPLANATION:
(U) Funding: See Above.
(U) Schedule: Not Applicable.
(U) Technical: Not Applicable.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N /BA-7 Operational Sys Dev	**0206313M Marine Corps Communications Sys**	**C2270 Command Post Systems**	

COST ($ in Millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**21.500**	**24.755**	**29.594**	**22.510**	**19.554**	**18.638**	**18.651**	**Cont**	**Cont**
Continuing War on Terrorism (Non-Additive)			**2.5***	**.1***	**.1***	**.4***	**.5***		
RDT&E Articles Qty									

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) Systems assigned to this project are to be used by commanders and their staffs to process, fuse, and tailor information to assist decision-making and enhance situational awareness. They will integrate and share information from sources both internal and external to the Marine Air-Ground Task Force (MAGTF) to provide a shared understanding of the battlespace. Maneuver C2 is the executive layer of decision support that retrieves and fuses information from the functional areas. It provides an integrated representation of the battlespace or a specific area of concern. The subprojects below develop systems that report unit status and location to the Tactical Combat Operations (TCO). They also disseminate maneuver information throughout the battlespace.

1. Decision support integrates information from the seven Command and Control (C2) functional areas and the support function. The information is tailored to support the users' specific needs. As a result of the MAGTF C4I Baseline subproject, an integrated migration strategy is being incorporated into the MAGTF software baseline, which will be common across and used by all MAGTF C4I programs.

2. The Tactical Command Operations (TCO) will provide systems to the command post which support Maneuver C2. Maneuver C2 is the executive layer of decision support that pulls and fuses information from other functional areas.

3. The Intelligence Analysis Systems (IAS) supports the employment of reconnaissance, surveillance, and target acquisition resources and the timely planning and processing of all-source intelligence; it ensures that tactical intelligence is tailored to meet specific mission requirements. A Marine Expeditionary Force (MEF) IAS variant will also process signal intelligence.

4. Advanced Field Artillery Tactical Data Systems (AFATDS) will consist of fire support command and control software fielded on Marine Corps common hardware. AFATDS will provide the MAGTF with an automated ability to rapidly integrate all supporting arm assets into maneuver plans.

5. The Expeditionary Integrated Combat Operations Center (EICOC)/Unit Operations Center (UOC) project develops and transitions two Command and Control Imperative ATDs (the Expeditionary Integrated Combat Operations Center (EICOC) and the Joint Tactical Communications ((JT COMMs) ATDs) into various Marine Corps and Joint Engineering and Manufacturing Development (E&MD) efforts. EICOC development efforts focus on: Cognitive Task Analysis (CTA); enhanced ergonomic physical design; evaluation of advanced multimedia hardware; integration and networking with advanced development communication systems; and advanced software development to support systems integration and advanced battlefield visualization concepts. EICOC developments are tailored to support transition of software and hardware developments as PIPs to the established MAGTF C4I baseline. EICOC is the interim name for the Unit Ops Center (UOC). The UOC name will replace the EICOC name starting with FY00. Unit Operations Center (UOC) will provide a facility and components for the integration of current and planned battlefield automation systems.

It will be, in essence a "system of systems" designed to optimize the positioning, interaction, and flow of information among the various staff agencies (G-2, G-3, Operations Directorate, etc.) and their automated information systems and between the unit and higher, adjacent or subordinate units or headquarters. The Marine Corps deploys Component/Joint Task Force (JTF/Marine Air Ground Task Force (MAGTF) command elements throughout the world to fulfill operational requirements, often in joint/combined forces arenas. The UOC is designed in garrison and tactical versions. The tactical version is called the Combat Operations Center (COC) which is an outgrowth of the integrated COC (ICOC), COC-Interim (COC-(I), and the Enhanced COC (ECOC) developments over the last two years. The garrison version is called the Command Center (CC).

CLASSIFICATION:		
EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-7 Operational Sys Dev	**0206313M Marine Corps Communications Sys**	**C2270 Command Post Systems**

6. TCAC PIP is a Product Improvement Plan (PIP) based on the MEF IAS program. TCAC PIP is a semi-automated signals intelligence (SIGINT) processing, analysis and reporting system integrated in to one HMMWV mounted standard tactical shelter housing essential computer and communication resources. Internal and external workstations, when connected via a local area network, will extend functional capabilities to multiple users. The system is modular in design allowing stand-alone operations support during high mobility or contingency operations. Essential voice and data communications and SIGINT processing capabilities will support and automate the management and dissemination of SIGINT-derived intelligence reports. ($2,500K) Technical Control and Analysis Center (TCAC) provides OEF Marines with a backbone, automated SIGINT system that fuses input from organic Radio Battalion SIGINT assets. Conduct integration, testing, and assessment of prototypes.

7. GCCS-I3 (Global Command and Control System Integrated Imagery and Intelligence) comprises a core system infrastructure to access and store imagery and intelligence date on local database servers. The baseline segments are developed to comply with the Defense Information Infrastructure (DII) Common Operating Environment (COE). The core of this system is mandated by DoD and is paid via a tax levied on all services.

8. The Data Automated Communications Terminal (DACT) will extend situational awareness to echelons below the battalion level within the Marine Corps. The DACT will receive, store, retrieve, create, modify, transmit and display map overlays, operational messages/reports, and position information via tactical radios, networks, and/or wire lines. A phased approach for full functionality fielding consists of software upgrades and enhancements that allow interoperability with other C4I systems. The DACT program's FY00 and FY01 efforts are being procured out of project C2271 of the PE.

9. Marine Corps Training, Exercise, and Employment Plan (MCTEEP) is a Windows-based, Marine Corps developed scheduling tool, identified in the Commandant's Planning Guidance (CPG) to standardize the "TEEP" process. MCTEEP software was first fielded in July 1995 to every G-3/S-3 in the operating forces.

10. The JECCS will facilitate command and control capabilities by providing "first in" backbone connectivity to Defense Information Systems Network (DISN) services in support of the JTFE mission. JECCS is designed to augment the current and planned communications architecture and to provide seamless transition to Digital Technical Control/Tactical Digital Network (DTC/TDN) in support of follow on forces. The system's capabilities and functions include Non-Secure Internet Protocol Router Network (NIPRNET), Secure IP Router Network

11. Single Integrated Air Picture (SIAP) is the product of fused, common, continual, coherent, unambiguous tracks of airborne objects of interest withing the surveillance area.

Continuing War on Terrorism	FY03	FY04	FY05	FY06	FY07
TCAC	2.5	0.1	0.1	0.4	0.5

PROGRAM ACCOMPLISHMENTS AND PLANS

FY 2001 Accomplishments

- (U) $ 0.326 TCO: Developed and tested new equipment for refresh.
- (U) $ 0.100 TCO: Developed and integrated common system software.
- (U) $ 0.100 TCO: Begun program management and engineering support.
- (U) $ 0.000 TCO: Incorporated Phase V ORD requirements, completed PHASE IV ORD requirements and integrated software changes into existing system. This effort forward financed with FY00 funding in the amount of $312K.
- (U) $ 0.147 IAS MOD: Begun integration lab support.
- (U) $ 0.167 IAS MOD: Continued Intel Fusion software improvements.
- (U) $ 0.136 IAS MOD: Begun interoperability assessment for IAS Systems.
- (U) $ 0.000 IAS MOD: Continued C2PC Intel software development. This effort was forward financed with $156 of FY00 funding.
- (U) $ 1.360 MAGTF C4I BASELINE: Completed all trade studies, market surveys and functional assessments.
- (U) $ 1.740 MAGTF C4I BASELINE: Continued designing and building DII COE compliant prototypes.
- (U) $ 1.200 MAGFT C4I BASELINE: Conducted an Early Operational Assessment of a multi-echelon environment of all prototypes.
- (U) $ 1.261 MAGTF C4I BASELINE: Continued disciplined risk management, requirements tracking and system engineering and analysis efforts.
- (U) $ 0.100 MAGTF C4I BASELINE: Begun program management support.

CLASSIFICATION:		
EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-7 Operational Sys Dev	**0206313M Marine Corps Communications Sys**	**C2270 Command Post Systems**

• (U) $	0.000	MAGTF C4I BASELINE: Continued disciplined risk management, requirements tracking and system engineering and analysis efforts for the DII/COE compliant prototype. This effort forward financed with $1,795 of FY00 funding.
• (U) $	1.468	AFATDS: Began research of new hardware platform for potential procurement starting in FY03.
• (U) $	0.000	AFATDS: Began and completed development efforts on AFATDS 99 Software. Migrate to DII COE. Add additional fire support functionality to support Marine Corps fire support systems. Begin training of test beds users (designated Marine Units) for release of AFATDS 99 Software. Develop interoperability with MAGTF C4I system (IOW, DACT, TLDHS, and TCO). This effort forward financed with $543K of FY00 funding.
• (U) $	7.211	UOC: Continued modeling and simulation, COTS/GOTS hardware and software system engineering, analysis and prototyping.
• (U) $	1.535	UOC: Conducted an Early Operational Assessment of the prototypes.
• (U) $	2.663	UOC: Continued Program Management Support.
• (U) $	1.986	JECC: Produced a Low Rate Initial Production (LRIP) unit that incorporates modifications recommended for the Engineering Development Models (EDMs).
(U) Total $	21.500	

FY 2002 Planned Program

• (U) $	0.430	TCO: Develop and test new Client Software.
• (U) $	0.170	TCO: Incorporate software changes and test new releases into existing systems.
• (U) $	0.450	TCO: Test Client workstations for refresh of existing hardware.
• (U) $	0.166	TCO: Program management and engineering support.
• (U) $	1.009	IAS MOD: Begin critical improvements to GCCS-I3 Intelligence Support software for USMC requirements.
• (U) $	0.300	IAS MOD: Continue Intel Fusion software improvements.
• (U) $	0.100	IAS MOD: Continue support of integration facility.
• (U) $	0.079	IAS MOD: Continue interoperabilty assessment.
• (U) $	2.062	MAGTF C4I BASELINE: Build, test, field and support DII COE compliant versions of GCCS-M in support of the six warfighting functions. This effort focuses primarily on the integration, inclusion and incorporation of Fire Support, Maneuver and Intel capabilities.
• (U) $	0.550	MAGTF C4I BASELINE: Continue Program Management Support.
• (U) $	0.350	MAGTF C4I BASELINE: Continue disciplined risk management, requirements tracking and systems engineering and analysis efforts.
• (U) $	1.050	MAGTF C4I BASELINE: Implementation of completed Functional Assessment, Trade Study and Market Survey identified requirements in support of MOC
• (U) $	2.000	MAGTF C4I BASELINE: Development of WIN NT for USMC AFATDS and GCCS-M client solutions to provide increased functionality and interoperability to Fire Support, Maneuver and Intel clients.
• (U) $	0.300	MAGTF C4I BASELINE: Development and implementation of system education curricula including Computer Based Training, Distance Learning and embedded scenarios to increase operator proficiency.
• (U) $	0.250	MAGTF C4I BASELINE: Begin configuration management.
• (U) $	1.002	AFATDS: Complete final development and enhancement of AFATDS V7 software. Develop increased interoperability with all other MAGTF C4I automated systems. Increase software effectiveness with, and in support of Marine Corps fire support systems.
• (U) $	0.804	AFATDS: Initiate development of AFATDS V8 software. Begin porting software to Windows NT environment. Simplify human factors interface to allow easier initial and sustainment training.

CLASSIFICATION:		
EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-7 Operational Sys Dev	**0206313M Marine Corps Communications Sys**	**C2270 Command Post Systems**

- (U) $ 0.417 AFATDS: Continue research of new hardware platform for system. Investigate the potential of moving to AFATDS server and Fire Support Client architecture for potential procurement in FY03.
- (U) $ 1.590 GCCS-I3: Begin operational system development.
- (U) $ 9.926 UOC: Engineering and manufacturing development effort including design of production representative modules.
- (U) $ 0.513 DACT: Continue development of Application Software enhancements for Vehicle and Foot Mobile DACTs.
- (U) $ 0.390 DACT: Continue system interface/interoperability with fielded systems receiving PDSS and new systems
- (U) $ 0.147 DACT: Continue development of Computer Based Training enhancements for both Vehicle and Foot Mobile DACTs.
- (U) $ 0.137 DACT: Continue Program Management Support.
- (U) $ 0.207 DACT: Conduct IOT&E for Foot Mobile DACT.
- (U) $ 0.356 MCDMT: Marine Corp Database Management Tool (MCDMT), formally known as MCTEEP, at the request of the Functional Sponsor, HQMC, PP&O. Efforts including: 1.) Database Evaluation and Conversion, 2.) System Architecture Evaluation for Optimal System Performance, 3.) creation of Situation Report (SITREP) and Operational Summary (OpSum) Templates for enhanced Data Entry and 4.) Implementation in MCDMT of Common Marine Corps Data Elements "

(U) Total $ 24.755

(U) FY 2003 Planned Program:

- (U) $ 0.340 TCO: Server testing and integration to develop additional functional capabilities.
- (U) $ 0.160 TCO: Integrate software changes into new system and perform testing.
- (U) $ 0.414 TCO: Testing and validations of advanced concepts and technologies.
- (U) $ 0.150 TCO: Program management and engineering support.
- (U) $ 0.495 IAS MOD: Continue critical improvements to GCCS-I3 Intelligence Support software for USMC requirements.
- (U) $ 0.300 IAS MOD: Continue to refine Intel Fusion software.
- (U) $ 0.100 IAS MOD: Continue support of integration facility.
- (U) $ 0.117 IAS MOD: Begin software modifications to support USMC joint interoperability.
- (U) $ 1.903 MAGTF C4I BASELINE: Continue to build, test, field and support DII COE compliant versions of GCCS-M in support of the six warfighting functions. This effort focuses primarily on the integration, inclusion and incorporation of Fire Support, Maneuver and Intel capabilities.
- (U) $ 0.465 MAGTF C4I BASELINE: Continue Program Management Support.
- (U) $ 0.300 MAGTF C4I BASELINE: Continue disciplined risk management, requirements tracking and systems engineering and analysis efforts.
- (U) $ 0.800 MAGTF C4I BASELINE: Continue implementation of completed Functional Assessment, Trade Study and Market Survey identified requirements in support of MOC requirements.
- (U) $ 1.994 MAGTF C4I BASELINE: Continue development of WIN NT for USMC AFATDS and GCCS-M client solutions to provide increased functionality and interoperability to existing clients as well as the addition of Logistics and communication to the baseline.
- (U) $ 0.225 MAGTF C4I BASELINE: Continue development and implementation of system education curricula including Computer Based Training to increase operator proficiency.

CLASSIFICATION:			
EXHIBIT R-2a, RDT&E Project Justification			DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N /BA-7 Operational Sys Dev	**0206313M Marine Corps Communications Sys**	**C2270 Command Post Systems**	

• (U) $	0.200	MAGTF C4I BASELINE: Continue configuration management.
• (U) $	1.167	AFATDS: Complete development effort of AFATDS V8 software. Increase functionality with Marine Corps fire support systems (including Towed Artillery Digitization). Enhance air mission processing capabilities of system. Further enhance human factors interface to provide simple and familiar view to users.
• (U) $	0.710	AFATDS: Continue research and selection of new hardware platform for system. Continue investigation and development of fire support client – server architecture.
• (U) $	1.612	GCCS-I3: Continue operational system development.
• (U) $	2.414	UOC: Continue engineering and manufacturing development effort including design of production representative modules.
• (U) $	0.405	DACT: Continue development of Application Software enhancements for Vehicle and Foot Mobile DACTs.
• (U) $	0.250	DACT: Continue system interface/interoperability with systems receiving PDSS and new fielded systems.
• (U) $	0.082	DACT: Continue development of Computer Based Training enhancements for Vehicle and Foot Mobile DACTs.
• (U) $	0.152	DACT: Continue Program Management Support.
• (U) $	0.212	DACT: Conduct FOT&E for Foot Mobile DACT.
• (U) $	2.860	DACT INTEGRATION: Begin the development, integration, testing and fielding of the Tank and DACT Vehicle Mount.
• (U) $	0.367	MCTEEP: Continue the development, integration, testing and fielding of selected MCTEEP Software upgrades to enhance the capabilities of MCTEEP. The prospective S/W modifications include; 1) incremental upgrades to accomplish progressively higher levels of DII / COE compliance, 2) increased data sorting, correlation and filtering capabilities to further facilitate rapid responses to complex information requests, 3) transition from the current Sybase licensed data-base management system (DBMS) to a DBMS having better long term supportability, 4) migration of MCTEEP to the MAGTF Software Baseline (MSBL), and implementation of MCTEEP as an available Unit Operations Center (UOC) function / application.
	2.400	SIAPS: Implement JROC approved Block 0 changes in the TAOM.
	9.000	SIAPS: Service System Engineering support to SIAP SE TF.
(U)Total $	29.594	

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification | DATE: **February 2002**

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-7 Operational Sys Dev	**0206313M Marine Corps Communications Sys**	**C2270 Command Post Systems**

PROJECT CHANGE SUMMARY	**FY2001**	**FY2002**	**FY 2003**
FY 2002 PRESIDENT'S BUDGET	24.480	24.976	
(U) Adjustments from the President's Budget:			
(U) SBIR/STTR Transfer	-0.462		
(U) Execution Adjustment			
(U) Minor Affordability Adjustment		-0.221	
(U) Program Adjustment	-2.518		
(U) FY 2003 President's Budget:	21.500	24.755	29.594

CHANGE SUMMARY EXPLANATION:

(U) Funding: See Above.

(U) Schedule: Not Applicable.

(U) Technical: Not Applicable.

(U) B. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) PMC BLI# 463100 TCO	7434	0	0	0	0	0	0	0	7434
(U) PMC BLI# 474900 IAS MOD	1468	1610	1328	1350	1358	1379	1402	Continuing	Continuing
(U) PMC BLI# 463100 AFATDS	3050	2158	0	479	2365	6201	5465	0	19718
(U) PMC BLI# 463100 UOC	0	0	23108	29873	36860	42290	42160	Continuing	Continuing
(U) PMC, BLI #463100, DACT	0	9521	6430	4280	0	0	0	0	20231

(U) Related RDT&E:

(U) PE 0301301L (Department of Defense Intelligence and Information Systems/Military Intelligence Integrated Data System/Integrated Data Base I and II) (Defense

(U) Navy Tactical Flag Communication and Control System.

CLASSIFICATION:			
EXHIBIT R-2a, RDT&E Project Justification			DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N /BA-7 Operational Sys Dev	**0206313M Marine Corps Communications Sys**	**C2270 Command Post Systems**	

(**U) C. ACQUISITION STRATEGY: TCO** - Tactical Combat Operations: Contracting is via General Services Administration schedules with various vendors and is for software maintenance and COTS evaluation and integration. Performance base reviews are conducted quarterly by the PMO.

(U) C. ACQUISITION STRATEGY: MCBL funds applied to the INRI contract through ITM2K are on a Time and Materials Contract. Funds to Logicon, Orlando, Florida for the SPEED contract are on a Firm Fixed Price Contract. Funds to SPAWAR Systems Center, Charelston are through a Navy Working Capital Fund. Funds to Raytheon are through the AFATDS Time and Materials contract. Funds to Logicon, Dumfries are on a Time and Materials contract.

(U) C. ACQUISITION STRATEGY: DACT - The Program develops software and hardware for two operational domains. The mounted DACT is a Command Control Situational Awareness device that will be installed in various tactical vehicles at the battalion and below levels with a special vehicle mounting kit, also being developed.

(**U) C. ACQUISITION STRATEGY: AFATDS** - AFATDS is a Cost Plus Award Fee contract through Army CECOM, Ft. Monmouth, N. J. R&D efforts will be a combined effort between the software developer (Raytheon) , the Army PM and the USMC of software enhancements for the next planned versions of AFATDS (A99 and V7).

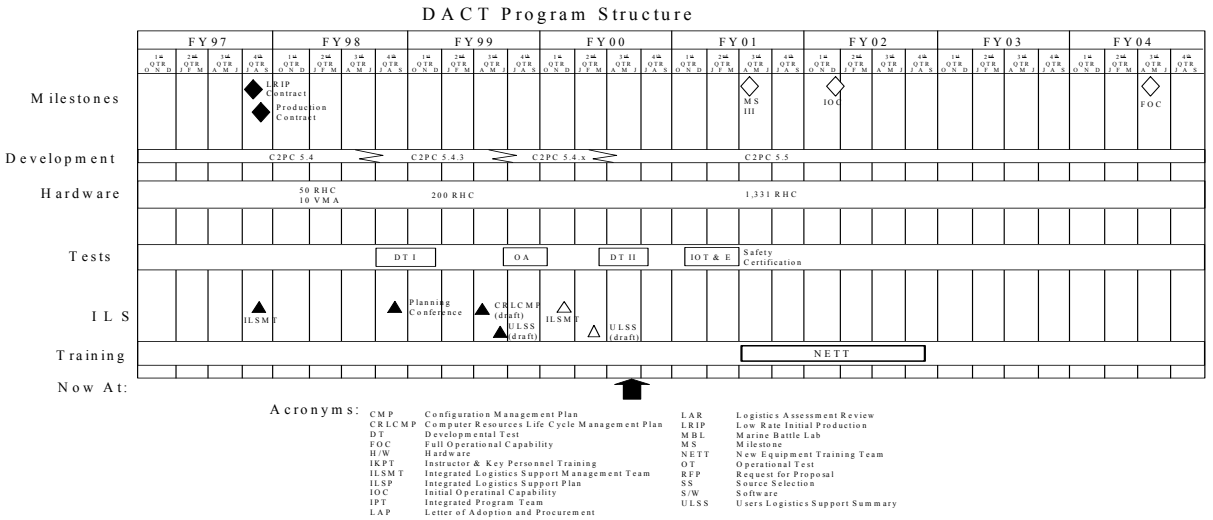
(**U) C. ACQUISITION STRATEGY: UOC -** The UOC COC will be a Competitively Awarded Contract for design (cost type) and FFP production options.

(U) C. ACQUISITION STRATEGY: IAS. The IAS program uses existing Government contracts for hardware and software development and integration. The system is comprised primarily of Commercial Off-the-Shelf(COTS) and Government Off-the-Shelf (GOTS) equipment.

(U) C. ACQUISITION STRATEGY: GCCS: The acquisition of components (software/hardware) for the GCCS I 3 initiative will maximize the use of existing COTS, GOTS, NDI, and GFE equipment. The GCCS I 3 initiative will be accomplished in collaboration with Millennium Technologies Corporation and Computer Science Corporation. Maintenance support will be managed by MARCORLOGBASES and those contractors listed above. This strategy accomplishes several goals: procure and field equipment effectively and efficiently, reduce logistics support, and reduce operational maintenance support.

CLASSIFICATION:		
EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-7 Operational Sys Dev	**0206313M Marine Corps Communications Sys**	**C2270 Command Post Systems**

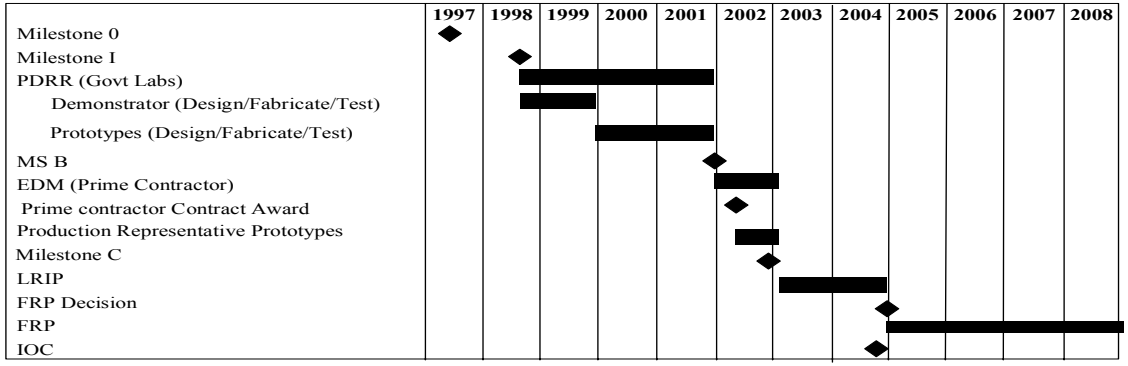
(U) D. SCHEDULE PROFILE:



Program Funding Summary	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(APPN, BLI #, NOMEN)									
(U) RDT&E,N	1.299	0	0	0		0	0	0	1.299
(U) RDT&E,N	0	1.394	3.961	1.37	1.501	1.078	0.886	Continuing	Continuing
(U) PMC, BLI#463100, DACT	0	9.521	6.43	4.28	0	0	0	0	20.231

CLASSIFICATION:		
EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-7 Operational Sys Dev	**0206313M Marine Corps Communications Sys**	**C2270 Command Post Systems**

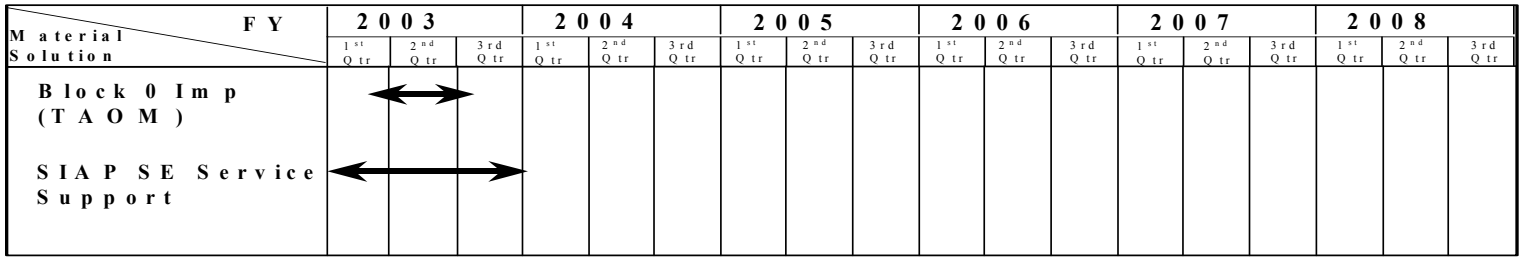
UOC Macro Program Schedule



Program Funding Summary (APPN, BLI #, NOMEN)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) RDT&E,N	11.409	9.926	2.414	9.562	6.600	6.600	6.600	0.000	53.111
(U) PMC BLI# 463100 UOC	0	0	23.108	29.873	36.86	42.29	42.16	Continuing	Continuing

CLASSIFICATION:			
EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2002
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N /BA-7 Operational Sys Dev	**0206313M Marine Corps Communications Sys**	**C2270 Command Post Systems**	

S I A P S u p p o r t S t r u c t u r e



Program Funding Summary (APPN, BLI #, NOMEN)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) RDT&E,N	0.000	0.000	11.4	0.000	0.000	0.000	0.000	0.000	11.4
(U) PMC	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

CLASSIFICATION:

Exhibit R-3 Cost Analysis			DATE: **February 2002**									
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**		PROGRAM ELEMENT **0206313M Marine Corps Communications Sys**			PROJECT NUMBER AND NAME **C2270 Command Post Systems**							
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development											0.000	
Ancillary Hardware Development											0.000	
Systems Engineering											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
UOC	WR	SSC, Charleston, SC	2.865	2.410	10/01	6.622	02/02	2.414	12/02	Continuing	Continuing	
UOC	RCP	MCCDC, Quantico, VA	0.952	0.000		0.000				0.000	0.952	
UOC	WR	CECOM, Ft. Monmouth,NJ	0.650	0.000		0.000				0.000	0.650	
UOC	RCP	AMCOM, Huntsville, AL	1.120	3.859	06/01	1.070	02/02			Continuing	Continuing	
UOC	RCP	NRL, Washington, DC	5.280	3.961	06/01	0.784	02/02			Continuing	Continuing	
TCO	RCP	MCTSSA, Camp Pndlt,CA	0.584							0.000	0.584	0.584
TCO	RCP	NWSC, Crane In				0.430	02/02			0.000	0.430	
TCO	RCP	MCSC, Quantico, VA				0.450	02/02			0.000	0.450	
TCO	WR	SPAWAR. Charleston, SC	0.844	0.426	03/01			1.064	12/02	1.921	4.255	
IAS MOD	RCP	NSWC, Crane In	0.484							0.000	0.484	
IAS MOD	TBD	SPAWAR. San Diego, CA				1.009	02/02	0.912	12/02	Continuing	Continuing	
IAS MOD	WR	MCTSSA, Camp Pndlt,CA	0.254							0.000	0.254	
MAGTF C4I BASELINE	RCP	SSC, Charleston, SC	7.108	4.148	11/00	2.062	02/02	1.903	12/02	Continuing	Continuing	
MAGTF C4I BASELINE	WR	SSC, Charleston, SC				0.350	02/02	0.300	12/02	Continuing	Continuing	
MAGTF C4I BASELINE	RCP	Raytheon, Indianapolis, IN				1.050	02/02	0.800	12/02	Continuing	Continuing	
MAGTF C4I BASELINE	TBD	INRI, San Diego, CA				2.000	02/02	1.994	12/02	Continuing	Continuing	
MAGTF C4I BASELINE	TBD	OSEC, Stafford, VA				0.300	02/02	0.225	12/02	Continuing	Continuing	
MAGTF C4I BASELINE	TBD	SSC, Charleston, SC				0.250	02/02	0.200	12/02	Continuing	Continuing	
AFATDS	MIPR	USA, Ft. Sill, OK	1.482	0.080	11/00	0.090	02/02	0.175	12/02	Continuing	Continuing	
AFATDS	C/FFP	Logicon, Stafford, VA	0.718	0.500	10/00	0.640	02/02	0.680	12/02	Continuing	Continuing	
AFATDS	CPFF/MIPI	USA, CECOM	0.882	0.563	01/01	1.123	02/02	0.652	12/02	Continuing	Continuing	
AFATDS	WR	MCSC, Quantico, VA				0.020	02/02	0.020	12/02	Continuing	Continuing	
AFATDS	CPFF/MIPI	CECOM, Ft. Monmouth,NJ	0.350	0.325	01/01	0.350	02/02	0.350	12/02	Continuing	Continuing	
TCAC-PIP	TBD	BTG, Fairfax, VA	0.807							Continuing	Continuing	
GCCS-13	TBD	TBD				1.590	02/02	1.612	12/02	Continuing	Continuing	
DACT	TM	Raytheon, Indianapolis, IN	2.151			0.160	02/02			Continuing	Continuing	
DACT	FFP	EPS, Ft. Monmouth, NJ	0.080			0.030	02/02			Continuing	Continuing	

CLASSIFICATION:

Exhibit R-3 Cost Analysis			DATE: **February 2002**									
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**		PROGRAM ELEMENT **0206313M Marine Corps Communications Sys**			PROJECT NUMBER AND NAME **C2270 Command Post Systems**							
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
DACT	TM	INRI, San Diego, CA	0.611			0.627	02/02	0.655	12/02	Continuing	Continuing	
DACT	GSA	OSEC, Stafford, VA	0.275			0.110	02/02	0.082	12/02	Continuing	Continuing	
DACT	CFFP	Logicon, Stafford, VA	0.145			0.123	02/02			Continuing	Continuing	
DACT INTEGRATION	TBD	TDB								Continuing	Continuing	
MCTEEP	C/CPFF	TBD				0.356	02/02	0.367	12/02	Continuing	Continuing	
JECCS	FFP	TBD	4.000	1.600	10/01					Continuing	Continuing	
SBIR												
Subtotal Product Development			31.642	17.872		21.596		14.405		Continuing	Continuing	
Remarks:												

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Development Support Equipment											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
UOC	RCP	LOGICON, Stafford, VA	0.730	0.939	10/00	1.200	02/02			Continuing	Continuing	
UOC	RCP	HQMC, Washington, DC	0.584	0.240	11/00	0.250	02/02			Continuing	Continuing	
TCO	RCP	MCTSSA, Camp Pndltn, CA	0.527	0.100	01/01	0.166	02/02			Continuing	Continuing	
IAS Mod	C/FFP	LOGICON, Stafford, VA	0.818							0.000	0.818	0.818
MSBL	C/PFF	LOGICON, Stafford, VA	0.100	0.100	10/00	0.300	02/02	0.250	12/02	Continuing	Continuing	
MSBL	TBD	Visicom, Dumfries, VA				0.250	02/02	0.215	12/02	Continuing	Continuing	
DACT	CFFP	LOGICON, Stafford, VA	0.211			0.093	02/02	0.100	12/02	Continuing	Continuing	
DACT	GSA	OSEC Stafford, VA	0.155			0.044	02/02	0.052	12/02	Continuing	Continuing	
JECCS	CPFF	LOGICON, Stafford, VA		0.186	02/02					Continuing	Continuing	
DACT INTEGRATION	TBD	TBD						2.356	12/02	Continuing	Continuing	
SIAP	RCP	CECOM, FT. MONMOUTH, NJ						1.200	02/03			
SIAP	RCP	MCSC, QUANTICO, VA						6.100	02/03			
SIAP	RCP	GSA, BREMERTON, WA						1.700	02/03			
SIAP	RCP	MCSC, QUANTICO, VA						2.400	02/03			
Subtotal Support			3.125	1.565		2.303		14.373				
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis						DATE: **February 2002**							
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**			PROGRAM ELEMENT **0206313M Marine Corps Communications Sys**			PROJECT NUMBER AND NAME **C2270 Command Post Systems**							
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation											0.000	
Operational Test & Evaluation											0.000	
Tooling											0.000	
GFE											0.000	
TCO	RCP	MCTSSA, Camp Pndltn, CA	0.201			0.170	02/02			Continuing	Continuing	
IAS Mod	WR	SPAWAR, Charleston SC	0.160							0.000	0.160	
IAS Mod	RCP	NMAC	0.206	0.167		0.300	03/02			0.300	0.160	
IAS Mod	WR	MCSC, Quantico, VA		0.147	10/00	0.100	02/02	0.100	12/02	0.100	0.347	
IAS Mod	WR	NSWC, Crane IN		0.136	10/00	0.079	02/02			0.449	0.664	
MSBL	RCP	MCOTEA, Quantico, VA	0.270	1.413	11/00					Continuing	Continuing	
DACT	WR	MCOTEA, Quantico, VA	0.075			0.207	02/02	0.212	12/02	Continuing	Continuing	
JECCS		MCOTEA, Quantico, VA		0.200	02/02					0.000	0.200	
DACT INTEGRATION	TBD	TBD						0.504	12/02	Continuing	Continuing	
											0.000	
Subtotal T&E			0.912	2.063		0.856		0.816		Continuing	Continuing	
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support											0.000	
Travel											0.000	
Labor (Research Personnel)											0.000	
Overhead											0.000	
Subtotal Management			0.000	0.000		0.000				0.000	0.000	
Remarks:												
Total Cost				21.500		24.755		29.594		Continuing	Continuing	

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2002**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communication Sys**				PROJECT NUMBER AND NAME **C2272 Intelligence C2 Systems**				
COST ($ in Millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**6.483**	**18.286**	**19.900**	**16.424**	**19.097**	**17.444**	**9.822**	**Cont**	**Cont**
Continuing War on Terrorism (Non-Additive)			**6.6***	**4.6***	**4.3***	**4.3***	**10.9***		
RDT&E Articles Qty									

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) Intelligence Command and Control (C2) supports the employment of reconnaissance, surveillance, and target acquisition resources and the timely planning and processing of all-source intelligence. It ensures that all-source tactical intelligence is tailored to meet specific mission requirements. The systems below collect and convert raw intelligence data on the battlefield into processed information and deliver the processed products to the Intelligence Analysis Systems (IAS) for analysis.

1. Tactical Exploitation of National Capabilities (TENCAP) is a program designed to enhance the ability of tactical Marine Corps forces to exploit the capabilities of national intelligence-gathering systems. Congressionally directed, it requires close liaison with the intelligence community and involves complex and highly-sensitive activities.
2. The Topographic Production Capability (TPC) is an advanced Geographic Information System, which employs commercial computer and software to provide the framework data for the common battlefield visualization by producing both hardcopy and digital geographic intelligence.

3. The Joint Surveillance Target Attack Radar (JSTARS) connectivity program will develop software which will allow the JSTARS Moving Target Indicator (MTI), Fixed Target Indication (FTI) and Synthetic Aperture Radar (SAR) Data to be passed from the JSTARS Common Ground Station (CGS) to lower echelons within the MAGTF. Once the Connectivity Software has been developed, a requirement for a JSTARS CGS software upgrade is anticipated under Joint Program Office Pre-Planned Product Improvement (P3I) initiative.
4. The Coastal Battlefield Reconnaissance and Analysis (COBRA) system is a passive multispectral sensor system capable of operating in a PIONEER unmanned aerial vehicle (UAV). Imagery recorded on the UAV or disseminated via data link is analyzed by the COBRA ground station. Ground station algorithm processing provides near real-time automatic minefield detection with Differential Global Positioning System (DGPS) location accuracy.
5. The JSIPS-TEG is a highly mobile imagery ground station designed to process tactical imagery in support of the MAGTF commander. The system is an integral component of the Joint Service Imagery Processing System (JSIPS), complementing the capabilities of the JSIPS National Input Segment (NIS) located at Camp Pendleton. The system will provide the capability to receive, process, store, exploit, and disseminate Advanced Tactical Air Reconnaissance System (ATARS) electro-optical, infrared, and synthetic aperture radar imagery from the F/A-18D (RC) and receive national secondary imagery from the NIS.
6. The Counterintelligence (CI) and Human Intelligence (HUMINT) Equipment Program (CIHEP) is an intelligence collection, analysis and reporting suite of equipment, employing commercial-off-the-shelf (COTS) and non-developmental items (NDI) of equipment and software. It will produce digital soft copy as well as hard copy CI, Interrogator-Translator (IT) and HUMINT information reports and images for the Marine Air Ground Task Force (MAGTF) or Joint Force (JTF) Commander. CIHEP will allow the electronic storage and dissemination of HUMINT information throughout the command, as well as for low volume traditional hard copy dissemination.
7. Team Portable Collection System - Multi-Platform Capable - The TPCS- MPC will provide the MAGTF commander with a modular and scaleable carry on/off suite of equipment capable of conducting Signals Intelligence (SIGINT) operations onboard organic non-dedicated Marine Corps air, ground, and water borne platforms. The TPCS-MPC will be highly modular, mission configurable, multi-platform system incorporating plug-and-play technologies. The system will provide state-of-the-art, versatile air/ground/water borne SIGINT and EW support to the MAGTF through the use of lightweight, flexible mission equipment suites capable of detecting, identifying, locating, and exploiting current and emerging communications technologies, intercepting non-communication signals, and improving the system's geolocation accuracy.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2002
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-7 Operational Sys Dev	**0206313M Marine Corps Communication Sys**	**C2272 Intelligence C2 Systems**

8. Tactical Remote Sensor System (TRSS-PIP) - The TRSS provides the Marine Air Ground Task Force (MAGTF) commander with an organic variety of sensors that will cover his Area of Responsibility for months at a time by allowing the commander to autonomously conduct unattended, semi-covert, ground surveillance of distant areas of the battlefield. Using a network of reliable passive sensors, these multiple systems enhance the commanders' ability to cover gaps in the overall intelligence collection effort, thus reducing the need to employ more costly hard to get weapons systems at a moments notice. The sensor systems also remove the requirement to employ Marines behind enemy lines for extreme periods of time.

	FY03	FY04	FY05	FY06	FY07
Continuing War on Terrorism					
($300K) Manpacked Secondary Imagery Dissemination System (MANPACK SIDS) provides imagery capture and transmission capability to reconnaissance units. Conduct integration, testing, and assessment of prototypes.	0.3	0.3	0.3	0.3	0.3
($2,500K) I-SURSS/SURSS procures additional aircraft and ground control stations for fielding to a wider range of units such as Light Armor Reconnaissance battalions, Surveillance Target Acquisition platoons, and Intelligence battalion. Conduct integration, testing, and assessment of prototypes.	2.5	1.5	1.0	1.0	1.0
	1.5	1.5	1.7	1.7	8.3
(1,500K) Tactical Exploitation of National Capabilities (TENCAP) -- Provides research and development efforts focused on improving use of national intelligence by tactical forces. Contract services to accelerate integration of Commercial Off The Shelf (COTS) hardware/software with national level intelligence information services and capabilities.					
	1.0	0.0	0.0	0.0	0.0
($1,000K) Tactical Exploitation Group (TEG) Provides Marines operating in OEF with finished imagery intelligence products for dissemination and fusion with other intelligence information. Conduct integration, testing, and assessment of prototypes.					
($1,200K) Intelligence Surveillance and Reconnaissance (ISR) ensures that OEF Marines have sufficient spares and parts for Intelligence systems that are subject to demanding environmental conditions; it additionally ensures that software updates are developed and fielded expeditiously. Conduct integration, testing, and assessment of prototypes.	1.2	1.2	1.2	1.2	1.2
($100K) TACPHOTO - Accelerates procurement and fielding of cameras to Operating Forces. Conduct integration, testing, and assessment of prototypes.	0.1	0.1	0.1	0.1	0.1

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2002
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communication Sys**	PROJECT NUMBER AND NAME **C2272 Intelligence C2 Systems**

PROGRAM ACCOMPLISHMENTS AND PLANS

FY 2001 Accomplishments

- (U) $ 0.133 TPC: Contractor support for Mods.
- (U) $ 0.184 TPC: Performed mods from OT&E
- (U) $ 1.816 TENCAP: Continued program support and management, evaluated national intelligence data systems for MAGTF applicability.
- (U) $ 0.420 TENCAP: Continued technical assessments of emerging national data dissemination capabilities.
- (U) $ 0.290 TENCAP: Continued to support operational planning to enhance operating force capabilities to US national intelligence data within the MAGTF C4I architecture.
- (U) $ 0.175 TENCAP: Continued TENCAP training and education efforts by providing the Fleet Marine Force with various TENCAP simulation, scripting, and processing hardware and software support.
- (U) $ 0.485 COBRA: Continued MarCorSysCom program support activities.
- (U) $ 0.450 COBRA: Coastal systems station program engineering support.
- (U) $ 0.450 COBRA: Continued ATD risk reduction verification. E&MD design.
- (U) $ 0.500 COBRA: Engineering and Manufacturing Development (E&MD) now called System Design and Demonstration (SDD).
- (U) $ 0.359 JSTARS: Continued engineering and technical support for development and integration of connectivity software that would reside on existing MAGTF systems and utilize JSTARS data.
- (U) $ 1.221 JSIPS-TEG: Continued engineering and technical support for development and integration of connectivity software that would reside on existing MAGTF systems and utilize JSTARS data.

(U) Total $ 6.483

FY 2002 Planned Program

- (U) $ 0.147 TPC: Continue Contractor support for Mods
- (U) $ 0.190 TPC: Continue to perform Mods OT&E
- (U) $ 0.110 CIHEP: Engineering, Integration and Technical support for technical refresh and update of program hardware/software upgrades.
- (U) $ 2.025 TENCAP: Continue program support and management, evaluate national intelligence data systems for MAGTF applicability.
- (U) $ 0.455 TENCAP: Continue technical assessments of emerging national data dissemination capabilities.
- (U) $ 0.458 TENCAP: Continue training and education efforts by providing the Fleet Marine Force with TENCAP simulation, visualization, and data receipt and dissemination capabilities.
- (U) $ 0.489 JSTARS: Continue engineering and technical support for development and integration of connectivity software what would reside on existing MAGTF systems and utilize JSTARS data.
- (U) $ 0.250 JSTARS: Contractor advisory and assistance services.
- (U) $ 0.142 JSTARS: Naval JSTARS interface OT&E.
- (U) $ 0.185 JSTARS: Joint Services Work Stations (JSWS) Field User Evaluation (FUE).
- (U) $ 2.486 COBRA: Continue Engineering and Manufacturing Development (E&MD) now called (SDD).
- (U) $ 0.436 COBRA: Continue MARCORSYSCOM program support activities.
- (U) $ 0.650 COBRA: NAVSEA Coastal Systems Station Program Tech Support

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2002
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communication Sys**	PROJECT NUMBER AND NAME **C2272 Intelligence C2 Systems**

- (U) $ 1.000 JSIPS-TEG: Develop Full Operational Capability; implement factory system for integration of required software/hardware upgrades.
- (U) $ 0.432 JSIPS-TEG: Begin Engineer and technical management support.
- (U) $ 0.360 JSIPS-TEG: Begin technical assessment of SIEC capability in support of the TEG-PIP initiative.
- (U) $ 1.953 TPCS-MPC: Begin EMD Design.
- (U) $ 1.239 TPCS-MPC: Begin System development.
- (U) $ 0.889 TPCS-MPC: Begin Testing and evaluation.
- (U) $ 0.427 TPCS-MPC: Begin Program support and management.
- (U) $ 0.562 TPCS-MPC: Begin Contractor advisory assistance service.
- (U) $ 3.401 TRSS-PIP: Begin Development of Unattended Ground Miniaturized Sensors (UGMS) for TRSS-PIP.

(U) Total $ 18.286

FY2003 PLANNED PROGRAM

- (U) $ 0.150 TPC: Continue Contractor support for Mods.
- (U) $ 0.199 TPC: Continue to perform Mods OT&E.
- (U) $ 0.113 CIHEP: Engineering and technical support for technical refresh and update of program hardware/software upgrades.
- (U) $ 2.275 TENCAP: Continue program support and management, evaluate national intelligence data systems for MAGTF applicability.
- (U) $ 0.400 TENCAP: Continue technical assessments of emerging national data dissemination capabilities.
- (U) $ 0.100 TENCAP: Continue to support operational planning to enhance operating force capabilities to US national intelligence data within the MAGTF C4I architecture.
- (U) $ 0.267 TENCAP: Continue to evaluate the utility of emerging exploitation, automated and manual target recognition and detection tools.
- (U) $ 0.300 JSTARS: Engineer and technical management support.
- (U) $ 0.485 JSTARS: Development of GCCS-M JSTARS interface segments.
- (U) $ 4.973 COBRA: Continue Engineering &Manufacturing Development (E&MD) now called (SDD).
- (U) $ 0.384 COBRA: Continue MARCORSYSCOM program support activities.
- (U) $ 0.658 COBRA: Continue NAVSEA CSS program tech support.
- (U) $ 0.485 JSIPS-TEG: Continue engineer and technical management support.
- (U) $ 1.465 JSIPS-TEG: Begin technical assessments of emerging national data dissemination capabilities into the JSIPS-TEG.
- (U) $ 0.364 JSIPS-TEG: Continue technical assessment of SIEC capability in support of TEG-PIP initiative.
- (U) $ 0.300 TPCS-MPC: Continue EDM design.
- (U) $ 0.425 TPCS-MPC: Continue system development.
- (U) $ 1.039 TPCS-MPC: Continue test and evaluation.
- (U) $ 0.514 TPCS-MPC: Continue program support and management.
- (U) $ 0.657 TPCS-MPC: Continue contract advisory assistance services.
- (U) $ 2.347 TRSS-PIP: Continue development of Unattended Ground Miniaturized Sensors (UGMS) for TRSS-PIP.
- (U) $ 1.500 TRSS-PIP: Begin Air Certification of Fixed Wing Delivered Sensor (AAD).
- (U) $ 0.500 TRSS-PIP: Begin Software Development of AADS and UGMS Monitoring System.

(U) Total $ 19.900

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2002
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communication Sys**	PROJECT NUMBER AND NAME **C2272 Intelligence C2 Systems**

(U) PROJECT CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	**8.555**	**18.449**	
(U) Adjustments from the President's Budget:			
(U) SBIR/STTR Transfer			
(U) Execution Adjustment	-0.134		
(U) Minor Affordability Adjustment		-0.163	
(U) Program Adjustment	-1.938		
(U) FY 2003 President's Budget:	6.483	18.286	19.900

CHANGE SUMMARY EXPLANATION:
(U) Funding: See Above.
(U) Schedule: Not Applicable.
(U) Technical: Not Applicable.

(U) B. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
PMC BLI 474700 Intell Supt Equip	TPC	7.046	4.611	3.942	3.586	0.574	0.000	0.000	0	19.759
PMC BLI 474900 Mod Kits Intell	JSTARS	0.000	1.723	0.265	3.461	5.853	4.969	0.085	Continuing	Continuing
PMC BLI 474700 Intell Support Equip	CIHEP	0.000	0.000	1.806	1.394	1.493	1.588	1.686	Continuing	Continuing
PMC BLI 474700 Intell Support Equip	COBRA	0.000	0.000	0.000	0.000	0.000	3.911	0.287	Continuing	Continuing
PMC BLI 474700 Intell Support Equip	JSIPS	0.950	4.559	2.953	2.912	0.619	0.000	0.000	0	11.993
PMC BLI 474700 Intell Support Equip	TPCS-MULTI	0.000	0.000	0.000	8.188	8.017	7.292	1.100	Continuing	Continuing
PMC BLI474700 Intell Support Equip	TRSS-PIP	0.000	0.322	5.846	9.871	10.470	12.199	12.617	Continuing	Continuing

(U) Related RDT&E:
(U) PE 0301301L (Department of Defense Intelligence and Information Systems/Military Intelligence Integrated Data System/Integrated Data Base I and II)
(U) PE 0604270A (Intelligence and Electronic Warfare Common Sensor (IEWCS), TACJAM-A)
(U) PE 0305885G (Tactical Cryptologic Program)
(U) PE 0603730A (Tactical Surveillance System - Advanced Development), Army TENCAP, Project D560
(U) PE 0603766A (Tactical Electronic Surveillance System - Advanced Development), Army TENCAP, Project D907
(U) PE 0604740A (Tactical Surveillance System - Engineering Development), OSD TENCAP, Project D662
(U) PE 0902398M (United States Special Operations Command), Chariot Program
(U) PE 0605867N (SEW Surveillance/Reconnaissance Support), Project Z1034

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2002
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communication Sys**	PROJECT NUMBER AND NAME **C2272 Intelligence C2 Systems**	

(U) C. ACQUISITION STRATEGY JSTARS: JSTARS will utilize existing Army JSTARS contracts with Motorola to procure CGS(s) and JSWS(s), for Pre-Planned Product Improvements (P3I) and Navy, JSTARS Interface software development. SPAWAR, Charleston, SC will oversee Naval JSTARS Interface (NJI) implementation into JSTARS CGS(s) and JSWS(s) and integration into the IAS. Motorola and SPAWAR contract reviews are held quarterly. Contractor logistical support will be provided through General Dynamic's I2P2 Contract.

(U) C. ACQUISITION STRATEGY COBRA: Cobra ACAT IV(T) program uses Full and Open competition for the prime of the EMD phase using a CPIF contract with a follow-on FFP for the production phase.

(U) C. ACQUISITION STRATEGY JSIPS TEG: The three deployed TEG(s) were procured from an ESC USAF Raytheon contract. During FY02, the Marine Corps brought control of the TEG program into Marine Corps System Command. A contract is in place with SPAWAR Charleston, SC to upgrade the TEG(s), conduct training, provide logistical support and program management. Once a system baseline is established and tested, a MS III decision will be scheduled.

(U) C. ACQUISITION STRATEGY TPCS: TPCS, the ever-increasing sophistication of target threats and information technology necessitates an evolutionary acquisition approach. TPCS will make incremental improvements through maximum use of COTS, GOTS and NDI. These technology insertions and product improvements will ensure the Radio Battalions maintain cutting edge technologies and collection capabilities.

(U) C. ACQUISITION STRATEGY TRSS: Development will be competitive down selection process to two vendors for a Cost Plus Development Contract followed up with an award to one vendor with a FFP Production Contract. Air certification will be conducted in house at NAVAIR Patuxent River NAS, MD.

(U) C. ACQUISITION STRATEGY TENCAP: Work will be led in-house. Necessary contractor support will be acquired using already existing contracts.

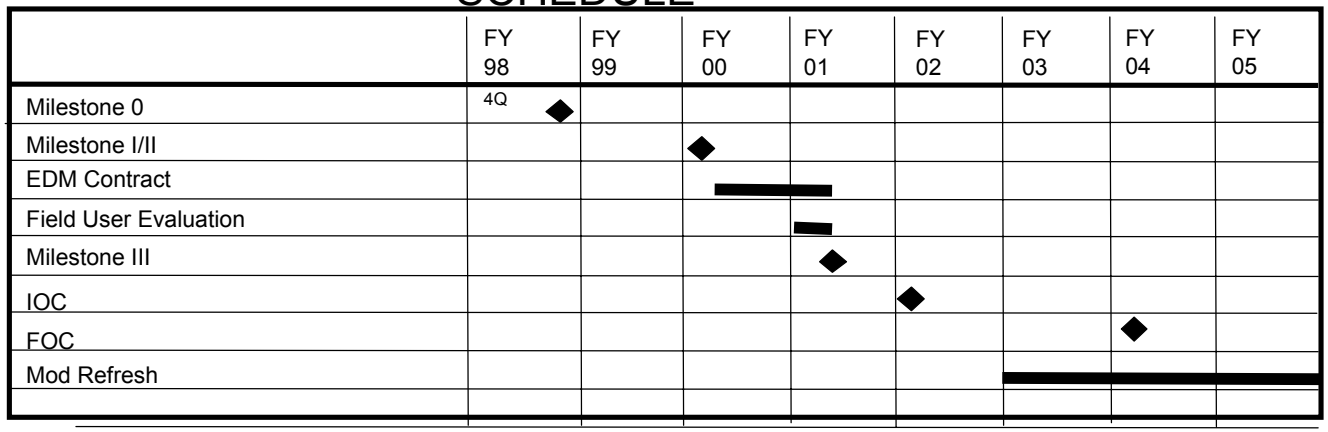
(U) C. ACQUISITION STRATEGY C1HEP: 8A contract will be used for ADP and Photo integration. US Army IMA will be used to integrate the TSS, Audio and Miscellaneous modules. The Communications module will use an existing USSOCOM contract.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2002
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communication Sys**	PROJECT NUMBER AND NAME **C2272 Intelligence C2 Systems**

(U) D. SCHEDULE PROFILE: TPC

SCHEDULE

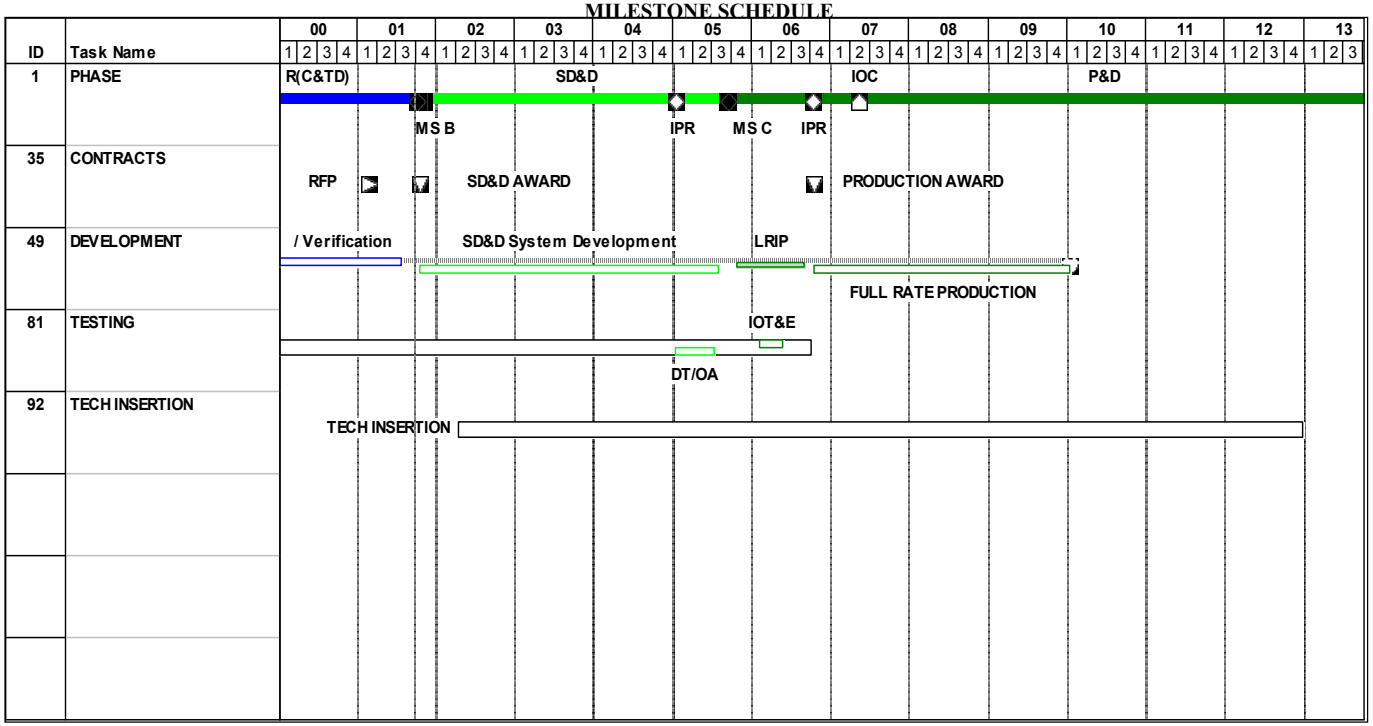


Program Funding Summary	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(APPN, BLI #, NOMEN)									
(U) RDT&E,N	0.317	0.337	0.349	0.357	0.365	0.374	0.382	Continuing	Continuing
(U) PMC, BLI# Intell Supp Eq-TPC	7.046	4.611	3.942	3.586	0.574	0	0	0	19.759

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2002
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communication Sys**	PROJECT NUMBER AND NAME **C2272 Intelligence C2 Systems**

COASTAL BATTLEFIELD RECONNAISSANCE AND ANALYSIS (COBRA)
MILESTONE SCHEDULE



Program Funding Summary	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl
(APPN, BLI #, NOMEN)								
(U) RDT&E,N	1.885	3.572	6.015	6.028	8.972	7.930	0.396	Continuing
(U) PMC BLI# 474700 Intell Supp Eq COBRA						3.911	0.287	Continuing

CLASSIFICATION:

Exhibit R-3 Cost Analysis					DATE: **February 2002**							
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**		PROGRAM ELEMENT **0206313M Marine Corps Communications Sys**			PROJECT NUMBER AND NAME **C2272 Intelligence C2 Systems**							
Cost Categories (Tailor to WBS, or System/Ite Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development											0.000	
Ancillary Hardware Development											0.000	
Systems Engineering											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
TENCAP	Various	Delfin	8.598	1.240	10/00	1.262	01/02	0.400	01/03	Continuing	Continuing	
TENCAP	TBD	TBD		0.685	12/00	0.556	03/02	0.100	03/03	Continuing	Continuing	
JSTARS	WR	SPAWAR CH		0.359	03/01	0.489	04/02	0.485	04/03	0.000	1.333	1.333
COBRA	RCP	MARCORSYSCOM		0.500	07/01	2.486	12/01	4.973	12/02	Continuing	Continuing	
COBRA	RCP	Littton/TASC		0.450	01/01						0.450	0.450
JSIPS TEG	MIPR	ESC, Hanscom AFB, MA	1.093	1.221	12/00	1.360	12/01	1.835	12/02	0.000	5.509	5.509
TPCS-MPC	WR	SPAWAR				3.192	12/01	0.725		Continuing	Continuing	
CIHEP	MIPR	IMA, Ft Meade, MD				0.050	12/01	0.050	12/02	Continuing	Continuing	
CIHEP	RCP	MCSC				0.060	03/02	0.063	03/03	Continuing	Continuing	
TRSS-PIP	RCP	NAVAIR				3.001	03/02	2.835	12/02	Continuing	Continuing	
TRSS-PIP	RCP	LOGICON				0.400	03/02			Continuing	Continuing	
TRSS-PIP	MIPR	NAWC PAX RIVER						1.512	12/02	Continuing	Continuing	
Subtotal Product Development			9.691	4.455		12.856		12.978		Continuing	Continuing	

Remarks:

Exhibit R-3 Cost Analysis					DATE: February 2002							
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**		PROGRAM ELEMENT **0206313M Marine Corps Communications Sys**			PROJECT NUMBER AND NAME **C2272 Intelligence C2 Systems**							
Cost Categories (Tailor to WBS, or System/Ite Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Development Support Equipment											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
TENCAP	Various	Delfin	2.209	0.576	12/00	0.650	10/01	2.275	10/02	Continuing	Continuing	
TENCAP	TBD	TBD		0.200	08/01	0.150	08/01	0.267	03/03	Continuing	Continuing	
TENCAP	MIPR	SMC/XRBP				0.320	04/01				0.320	0.320
COBRA	WR	CSS	0.350	0.450	12/00	0.650	10/01	0.658	10/02	Continuing	Continuing	
COBRA	RCP	BRTRC	0.160	0.100	12/00	0.137	12/01	0.159	12/02	Continuing	Continuing	
COBRA	WR	NAWC-AD		0.200	04/01	0.200	12/01	0.200	12/02	Continuing	Continuing	
COBRA	various	MARCORSYSCOM		0.185	04/01	0.099	04/02	0.025	04/03	Continuing	Continuing	
JSTARS	RCP	Logicon	0.242			0.250	03/02	0.300	03/03	Continuing	Continuing	
JSIPS - TEG	RCP	Logicon				0.432	01/02	0.479	01/03	Continuing	Continuing	
TPC	RCP	Logicon	0.238	0.133	12/00	0.147	12/01	0.150	12/02	Continuing	Continuing	
TPCS-MPC	RCP	CSS				0.000		0.514	TBD	Continuing	Continuing	
TPCS-MPC	RCP	Logicon				0.562	11/01	0.657	TBD	Continuing	Continuing	
TPCS-MPC	RCP	CSC				0.375	03/02					
TPCS-MPC	RCP	DAC				0.052	03/02					
Subtotal Support			3.199	1.844		4.024		5.684		Continuing	Continuing	
Remarks:												

Cost Categories (Tailor to WBS, or System/Ite Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation											0.000	
Operational Test & Evaluation											0.000	
Tooling											0.000	
JSTARS	WR	NSWC CRANE				0.327	03/02			0.000	0.327	0.327
TPC	MIPR	CECOM	0.332	0.184	12/00	0.190	12/01	0.199	12/02	Continuing	Continuing	
TPCS-MPC	RCP	SPAWAR				0.256	09/02	1.039	TBD	Continuing	Continuing	
TPCS-MPC	RCP	BTG				0.633	03/02					
Subtotal T&E			0.332	0.184		1.406		1.238		Continuing	Continuing	
Remarks:												

Exhibit R-3 Cost Analysis							DATE: **February 2002**					
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**		PROGRAM ELEMENT **0206313M Marine Corps Communications Sys**			PROJECT NUMBER AND NAME **C2272 Intelligence C2 Systems**							
Cost Categories (Tailor to WBS, or System/Ite Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support											0.000	
Travel											0.000	
Labor (Research Personnel)											0.000	
Overhead											0.000	
Subtotal Management			0.000	0.000		0.000				0.000	0.000	
Remarks:												
Total Cost				6.483		18.286		19.900		Continuing	Continuing	

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2002		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Sys**				PROJECT NUMBER AND NAME **C2273 Air Operations C2 Systems**				
COST ($ in Millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**24.261**	**24.074**	**63.320**	**65.786**	**18.464**	**21.219**	**18.398**	**Cont**	**Cont**
RDT&E Articles Qty									

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) Air Operations C2 coordinates and plans Navy and Marine air combat operations and interfaces with joint and combined forces air operations. It also interfaces with fire support C2. The systems in this project are used to detect aircraft and missiles, process the detected information, deliver the processed information to the Advanced Tactical Air Command Central (ATACC), and conduct the air battle.

1. The Air Defense Communications Platform (ADCP) PIP provides an interface for the AN/TPS-59(V)3 radar and for tactical ballistic missile defense as a JTIDS network user. The ADCP provides a direct interface between the AN/TPS(V)3 and the joint services.

2. The Aviation Radar (AN/TPS-59) is a "congressionally mandated" national asset. It is the only fielded ground based sensor which can detect and track Theater Ballistic Missiles at ranges of 400 nautical miles, for 360 degrees up to one million feet in elevation.

3. The Common Aviation Command and Control System (CAC2S) will provide a common baseline of equipment, computer hardware, and software required to perform the mission of the Marine Air Command and Control System (MACCS). CAC2S will provide a complete and coordinated modernization effort for the equipment of the MACCS to support its employment in an Operational Maneuver from the Sea (OMFTS) environment. The CAC2S will eliminate the current dissimilar aviation Command & Control systems, and will add the capability for aviation combat direction and air defense functions. CAC2S will be comprised of standardized tactical facilities, hardware, software and will significantly reduce the physical size and logistical footprint of existing MACCS equipment suite. Utilizing common hardware, the CAC2S will be an open architecture system that will migrate to the Defense Information Infrastructure Common Operating Environment (DII COE). Furthermore, CAC2S will execute real time functions of controlling aircraft and missiles, and employing weapon systems against time critical targets.

CAC2S will provide a capability that allows operators to integrate Marine aviation into joint and combined air/ground operations. CAC2S will provide the tools that perform aviation C2 planning and execution functions in a positive control environment. CAC2S will assimilate the missions and fiscal resources of the Tactical Air Operations Center (TAOM), Tactical Air Command Center and the Direct Air Support Center (DASC) and the Air Defense Communications Platform (ADCP).

4. The MACCS Sustainment consists of various command and control agencies designed to provide the Aviation Combat Element (ACE) commander with the ability to monitor, supervise and influence the application of Marine aviation assets in support of MAGTF operations. The MACCS Sustainment provides funding to keep these legacy agencies ready, relevant and capable until their functions are replaced by the Common Aviation Command and Control System (CAC2S).

5. Theater Battle Management Core Systems (TBMCS) provides the commander the automated tools necessary to generate, disseminate, and execute the Air Tasking Order (ATO), as mandated by the Chairman, Joint Chiefs of Staff in July 1993. It is an evolutionary acquisition, allowing for the rapid development/fielding of hardware and software to meet today's rapidly advancing technology. It is fielded to all four Marine Tactical Air Command Squadrons (MTACS) and the supporting establishment with Marine Aviation Weapons and Tactics School (MAWTS) and the Battlestaff Training Facility (BSTF) sharing a system.

6. The Tactical Air Operations Module (TAOM) improves the current system; the TAOM is the center for directing aircraft and anti-air systems in real time as part of the joint air battle.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2002
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-7 Operational Sys Dev	**0206313M Marine Corps Communications Sys**	**C2273 Air Operations C2 Systems**

PROGRAM ACCOMPLISHMENTS AND PLANS

FY 2001 Accomplishments

- (U) $ 0.243 ADCP: Continued software enhancements to meet ADCP ORD requirements.
- (U) $ 0 AV RDR: Continued safety ECP's developing a replacement IFF Interrogator, maintenance lift, False Alarm Adaptation (FAA) software, and development of software in support of two separate ORDs. This effort forward financed with $758K of FY00 funding.
- (U) $ 7.478 AN/TPS-59: Antenna obsolescence ECPs to deal with diminishing manufacturing sources issue.
- (U) $ 0.539 AN/TPS-59: Counter arm missile defense capability to meet current threats.
- (U) $ 0.800 AN/TPS-59: Developed ECP to incorporate IFF antenna into main radar antenna.
- (U) $ 0.300 AN/TPS-59: Continued Program in Process Review and contract management.
- (U) $ 0.800 AN/TPS-59: Developed concept study for antenna mobility.
- (U) $ 1.992 CAC2S: Continued program management support.
- (U) $ 0.579 CAC2S: Independent Validation & Verification (SPAWAR Systems Center Charleston) of Phase I Contractor's Systems Design.
- (U) $ 9.882 CAC2S: Continued Phase I PDRR actions, awarded PDRR contract to demonstrate system engineering, software design and development, and Processing and Display System (PDS) efforts. Continued and completed initial sensor interface/integration and begun interoperability testing in preparation of Engineering.
- (U) $ 0.317 TBMCS: Continued USMC's TBMCS development.
- (U) $ 0.025 TBMCS: Continued MCTSSA TBMCS software support.
- (U) $ 0.268 TBMCS: Program management support.
- (U) $ 0.573 TBMCS: Initiated In-Service Engineering Activities in support of automation insertion into the DASC
- (U) $ 0.465 External Hold

(U) Total $ 24.261

FY 2002 Planned Program

- (U) $ 0.145 ADCP: Test and certify software enhancements.
- (U) $ 0.100 ADCP: Continue software enhancements to meet ADCP ORD requirements.
- (U) $ 6.000 AN/TPS-59: Demonstrate potential antenna technology/slotted waveguide antenna.
- (U) $ 2.131 AN/TPS-59: Develop ECP to incorporate electronic protection.
- (U) $ 1.500 AN/TPS-59: Develop ECP to incorporate new transmitters for the antenna.
- (U) $ 1.098 AN/TPS-59: Initiate ECP false alarm adaption software.
- (U) $ 2.500 CAC2S: Continue Program management support.
- (U) $ 7.190 CAC2S: Complete PDRR demonstration. Continue Engineering Development Model (EDM) hardware and software development, design, of host processing system, and conduct software integration of Joint mandated applications.
- (U) $ 0.052 MACCS SUSTAINMENT: Initiate test and evaluation on the DASC Airborne SLEP.
- (U) $ 2.432 MACCS SUSTAINMENT: Plan software upgrades for the TAOM, JTIDS and TACC.
- (U) $ 0.162 MACCS SUSTAINMENT: Program management support.
- (U) $ 0.454 TBMCS: Continue USMC TBMCS development.
- (U) $ 0.033 TBMCS: Continue MCTSSA TBMCS software support.
- (U) $ 0.277 TBMCS: Continue Program management support.

(U) Total $ 24.074

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-7 Operational Sys Dev	**0206313M Marine Corps Communications Sys**	**C2273 Air Operations C2 Systems**

(U) FY 2003 Planned Program:

- (U) $ 0.111 ADCP: Continue Test and certify software enhancements.
- (U) $ 0.100 ADCP: Continue software enhancements to meet ADCP ORD requirements.
- (U) $ 2.569 AN/TPS-59: Develop ECPs for software improvements.
- (U) $ 3.170 CAC2S: Continue Program management support.
- (U) $ 49.783 CAC2S: Continue sensor interface/integration, communications interface/interoperability development.
- (U) $ 3.000 CAC2S: Engineering Development Model (EDM) developmental testing and evaluation and baseline stabilization.
- (U) $ 0.600 CAC2S: Continue Independent Validation and Verification (SPAWAR Systems Center Charleston) of Phase I Contractor's Systems Design.
- (U) $ 0.022 MACCS SUSTAINMENT: Continue test and evaluation for the DASC Airborne.
- (U) $ 0.899 MACCS SUSTAINMENT: Continue planned software upgrades in the DASC.
- (U) $ 0.290 MACCS SUSTAINMENT: Continue Program management support.
- (U) $ 2.000 MACCS SUSTAINMENT: Multi-Soure Correlation System software development.
- (U) $ 0.465 TBMCS: Continue USMC TBMCS development.
- (U) $ 0.033 TBMCS: Continue MCTSSA TBMCS software support.
- (U) $ 0.278 TBMCS: Continue Program management support.

(U) Total $ 63.320

(U) PROJECT CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	24.553	18.238	
(U) Adjustments from the President's Budget:			
(U) SBIR/STTR Transfer	-0.600		
(U) Execution Adjustment			
(U) Minor Affordability Adjustment		-0.164	
(U) Program Adjustment	0.308	6.000	
(U) FY 2003 President's Budget	24.261	24.074	63.320

CHANGE SUMMARY EXPLANATION:
(U) Funding: See Above.
(U) Schedule: Not Applicable.
(U) Technical: Not Applicable.

(U) B. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) PMC, BLI#464000,TBMCS (CTAPS)	3.024	3.071	2.435	6.612	3.484	3.609	3.702	Continuing	Continuing
(U) PMC, BLI#462000, ADCP PIP	0.329	0.373	0.325	0.275	0.175	0.055	0	0	1.532
(U) PMC, BLI #463600, AN/TPS-59	1.068	5.23	4.323	4.815	5.508	13.297	32.085	Continuing	Continuing
(U) PMC, BLI #464000, Air Ops Systems CAC2S	0	0	0	0	47.059	43.812	34.525	Continuing	Continuing
(U) PMC, BLI #464000, MACCS SUSTAINMENT	0	0	3.104	4.136	4.865	0.593	0	0	12.698
(U) PMC, BLI 464000, TAOM	4.209	0	0	0	0	0	0	0	4.209

(U) Related RDT&E: Not Applicable.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-7 Operational Sys Dev	**0206313M Marine Corps Communications Sys**	**C2273 Air Operations C2 Systems**

(U) C. ACQUISITION STRATEGY:

(U) AN/TPS 59: Perform research and development for electronic protection and continuing resolution of Diminishing Manufacturing Sources (DMS) as well as replacement of transmitters on the 12 arrays over the 5 year FYDP.

(U) CAC2S: The contracting strategy is centered on a family of options that will be exercised from PDRR through Increment II production based on contractor performance. The base contract is for PDRR and there will be options for EMD-I, EMD-II, Production-I and Production-II. The PDRR contract is a Cost Plus Fixed Fee for up to two contractors. Following the PDRR phase, an option for the EMD-I phase will be exercised for one contractor. The EMD contract options of Increment I and II will be Cost Plus Award Fee. After successful completion of each EMD, a production option will be exercised. The production contracts for Increment I and II will be Firm Fixed Price Successive Targets (Modified).

(U) MACCS SUSTAINMENT: The Direct Air Support Central (Airborne) Abbreviated Acquisition Program is utilizing a sole-source strategy with Computing Devices Canada, a wholly-owned subsidiary of General Dynamics, for procurement of Communications Distribution System equipment. Prototype development and system integration will be conducted by Naval Surface Weapons Center, Crane, IN.

(U) ADCP: PM AD has an In Service Engineering (ISEA) with Crane. As part of the ISEA, Crane is tasked to develop, produce, and implement Engineering Change Proposals, or mods as identified in the new DOD 5000. In this case the Multi-Channel Interface (MCIU) interface to the TAOM (V)4 providing a TADIL J capability to the TAOM (V)4 is being produced.

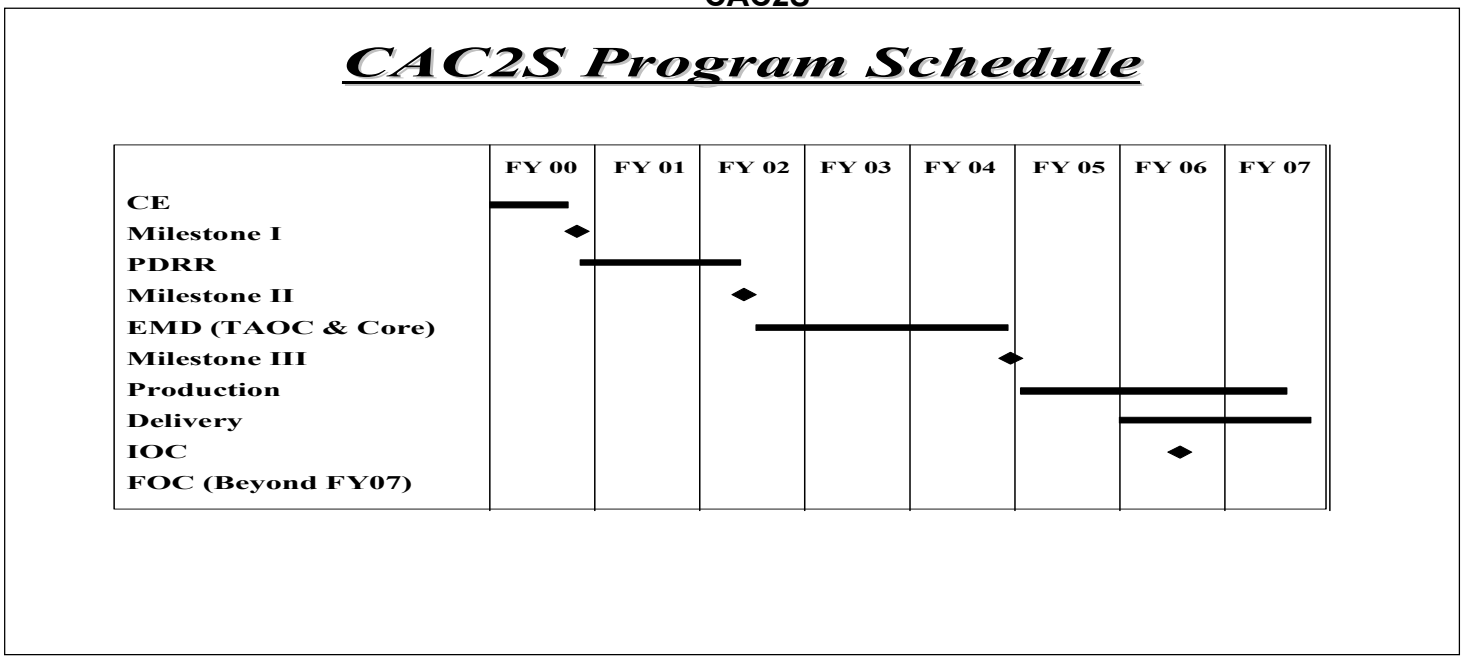
(U) TBMCS: TBMCS is an ACAT 1AC, USAF Program with joint interest/oversight. It was mandated by the Chairman, Joint Chiefs of Staff in July 93 for Air Tasking Order (ATO) Interoperability among all Services. The USMC will not be letting any competitive contracts for TBMCS, but following the USAF lead, utilizing USAF TBMCS contracts and fielding only the joint modules of TBMCS. As USMC unique requirements are identified and funded, they will be provided to the USAF (to include funding) for inclusion within TBMCS utilizing the USAF cost plus fixed fee contract.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2002
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-7 Operational Sys Dev	**0206313M Marine Corps Communications Sys**	**C2273 Air Operations C2 Systems**

(U) D. SCHEDULE PROFILE:

CAC2S



Program Funding Summary (APPN, BLI #, NOMEN)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) RDT&E,N	12.453	9.690	56.553	59.857	14.933	9.875	14.806	0	178.167
(U) PMC, BLI# 464000 Air Ops Sys-CAC2S	0	0	0	0	47.059	43.812	34.525	Continuing	Continuing

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2002
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Sys**	PROJECT NUMBER AND NAME **C2273 Air Operations C2 Systems**

TPS-59 RADAR SCHEDULE:

(V)3 Fielding Schedule:	3rd Qtr 98 thru 3rd Qtr 99
IOC:	Sep 98
FOC:	Aug 99
CEC Integration:	1st Qtr 99 thru 4th Qtr 00
Develop:	1st Qtr 99 thru 3rd Qtr 01
IV&V:	3rd Qtr 99 thru 4th Qtr 00
Antenna Obsoleses ECP's:	1st Qtr 99 thru 3rd Qtr 04
Procure (Various):	1st Qtr 99 thru 4th Qtr 03
IOC:	2nd Qtr 01
FOC:	4th Qtr 07

Program Funding Summary (APPN, BLI #, NOMEN)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) RDT&E,N	9.917	10.729	2.569	2.868	2.606	10.474	2.721	Continuing	Continuing
(U) PMC BLI# 463600 AN/TPS-59	1.068	5.230	4.323	4.815	5.508	13.297	32.085	Continuing	Continuing

CLASSIFICATION:

Exhibit R-3 Cost Analysis					DATE: **February 2002**							
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**			PROGRAM ELEMENT **0206313M Marine Corps Comm**		PROJECT NUMBER AND NAME **C2273 Air Operations C2 Systems**							
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	FY 03 Cost to Complete	FY 03 Total Cost	Target Value of Contract
Primary Hardware Development											0.000	
Ancillary Hardware Development											0.000	
Systems Engineering											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
CAC2S	WR	Center Charleston, SC	5.562	0.735	10/00	0.250	01/02	0.600	01/03	Continuing	Continuing	
CAC2S	RCP	ASN C4I, Wash DC	0.494	0.000		0.000		0.000		0.000	0.494	0.494
CAC2S	RCP	BRTRC, Quantico, VA	0.253	0.275	12/00	0.000		0.000		0.000	0.528	0.528
CAC2S	RCP	Raytheon, San Diego CA	0.000	0.000		6.926	01/02	52.783	03/03	Continuing	Continuing	
CAC2S	WR	NSWC, Crane, IN	0.000	8.204	07/01	0.000		0.000		0.000	8.204	8.204
CAC2S	RCP	SPAWAR	0.000	0.100	07/01	0.500	03/02	0.000		Continuing	Continuing	
ADCP	WR	NSWC Crane, IN	1.181	0.565	11/00	0.127	03/02	0.125	03/03	Continuing	Continuing	
MACCS SUSTAINMENT	WR	NAVSEA Crane, IN	0.000	0.000		2.432	03/02	1.000	03/03	Continuing	Continuing	
MACCS SUSTAINMENT	CPFF	Lockheed,	0.000	0.000		0.000		2.000	01/03	Continuing	Continuing	
AN/TPS-59	C/CPFF	Lockheed,Syracuse NY	10.440	8.296	07/01	4.729	01/02	2.569	03/03	Continuing	Continuing	
AN/TPS-59	C/CPFF	Sensis, Syracuse NY	0.455	0.454	07/01	0.000		0.000		0.000	0.909	0.909
AN/TPS-59	RCP	MCSC, Quantico, VA	1.024	0.000		0.000		0.000		0.000	1.024	1.024
AN/TPS-59	WR	NSWC, Crane, IN	0.050	0.000		0.000		0.000		0.000	0.050	0.050
AN/TPS-59	RCP	GSA, Bremerton, WA	0.000	0.165	02/01	0.000		0.000			0.165	0.165
AN/TPS-59	RCP	MICOM, Huntsville, AL	0.000	0.011	09/01	0.000		0.000			0.011	0.011
AN/TPS-59	RCP	MCSC, Quantico, VA	0.000	0.000		6.000	07/02	0.000		0.000	6.000	6.000
TBMCS	WR	MCSC, Quantico, VA	0.090	0.271	09/02	0.000		0.000		0.000	0.361	0.361
TBMCS	MIPR	ESC, Hanscom AFB	0.280	0.000		0.454	03/02	0.000		Continuing	Continuing	
TBMCS	WR	NSWC, Crane, IN	0.000	0.000		0.000		0.150	03/03	Continuing	Continuing	
TAOM	RCP	MCSC, Quantico, VA	2.879	0.000		0.000		0.000		0.000	2.879	2.879
Subtotal Product Development			22.708	19.076		21.418		59.227		Continuing	Continuing	

Remarks:

Exhibit R-3 Cost Analysis											DATE: February 2002		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**			PROGRAM ELEMENT **0206313M Marine Corps Comm**		PROJECT NUMBER AND NAME **C2273 Air Operations C2 Systems**								
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	FY 03 Cost to Complete	FY 03 Total Cost	Target Value of Contract
Development Support Equipment											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
CAC2S	WR	MCSC, Quantico, VA	0.148	0.023	10/00	0.000		0.150	01/03	0.000	0.171	0.321
CAC2S	WR	MCTSSA, CPndltn,CA	0.050	0.030	10/00	0.030	01/02	0.050	01/03	Continuing	Continuing	
CAC2S	WR	MCLB Albany GA	0.011	0.005	10/00	0.005	01/02	0.005	01/03	Continuing	Continuing	
CAC2S	WR	3rd MAW San Diego, CA	0.013	0.003	10/00	0.005	01/02	0.005	01/03	Continuing	Continuing	
CAC2S	WR	NWSC Crane, IN	0.316	0.261	10/00	0.600	01/02	1.000	01/03	Continuing	Continuing	
CAC2S	WR	CG 1st MAW	0.014	0.003	10/00	0.005	01/02	0.005	01/03	Continuing	Continuing	
CAC2S	WR	2nd MAWCh Pt, NC	0.024	0.051	10/00	0.064	01/02	0.020	01/03	Continuing	Continuing	
CAC2S	WR	MarForRes NO, LA	0.006	0.003	10/00	0.005	01/02	0.005	01/03	Continuing	Continuing	
CAC2S	WR	MCAS Yuma, AZ	0.012	0.000		0.000		0.005	01/03	0.005	0.017	0.017
CAC2S	RCP	MCSC, Quantico, VA	0.124	0.000		0.000		0.000		0.000	0.124	0.124
CAC2S		MCOTEA	0.000	0.000		0.000		0.125	01/03	Continuing	Continuing	
MACCS Sustainment	WR	MCTSSA, CPndltn,CA	0.000	0.000		0.161	01/02	0.150	01/03	Continuing	Continuing	
ADCP	WR	MCTSSA, CPndltn,CA	0.120	0.003	11/00	0.088	01/02	0.056	01/03	Continuing	Continuing	
ADCP	WR	MCSC, Quantico, VA	0.040	0.000		0.030	01/02	0.030	01/03	Continuing	Continuing	
ADCP	WR	MCAGC, 29 Palms CA	0.002	0.000		0.000		0.000		0.000	0.002	0.002
ADCP	WR	MCLB Albany GA	0.004	0.000		0.000		0.000		0.000	0.004	0.004
ADCP	WR	2nd MAWCh Pt, NC	0.000	0.004	06/01	0.000		0.000			0.004	0.004
ADCP	RCP	MCTSSA, CPndltn,CA	0.000	0.059	09/01	0.000		0.000			0.059	0.059
AN/TPS-59	WR	NWSC Crane, IN	0.086	0.000		0.000		0.000		0.000	0.086	0.086
AN/TPS-59	WR	MCTSSA, CPndltn,CA	0.020	0.025	09/00	0.000		0.000		0.000	0.045	0.045
AN/TPS-59	WR	MCLB Albany GA	0.020	0.020	01/01	0.000		0.000		0.000	0.040	0.040
AN/TPS-59	WR	NRL, Washington, DC	0.327	0.000		0.000		0.000		0.000	0.327	0.327
AN/TPS-59	WR	2nd MAWCh Pt, NC	0.001	0.000		0.000		0.000		0.000	0.001	0.001
AN/TPS-59	WR	NSWC Crane, In	0.060	0.000		0.000		0.000		0.000	0.060	0.060
AN/TPS-59	WR	DLA, Syracuse, NY	0.000	0.005	10/00	0.000		0.000			0.005	0.005
AN/TPS-59	WR	MCSC, Quantico, VA	0.000	0.063	10/00	0.000		0.000			0.063	0.063
AN/TPS-59	WR	MCSC, Quantico, VA	0.000	0.033	01/01	0.000		0.000			0.033	0.033
AN/TPS-59	WR	MCLB Albany GA	0.000	0.013	10/00	0.000		0.000			0.013	0.013
AN/TPS-59	RCP	NSWC Crane, In	0.000	0.100	02/01	0.000		0.000			0.100	0.100
AN/TPS-59	RCP	GSA, Bremerton, WA	0.000	0.186	09/01	0.000		0.000			0.186	0.186
AN/TPS-59	RCP	MCSC, Quantico, VA	0.000	0.008	02/01	0.000		0.000			0.008	0.008
TBMCS	WR	MCTSSA, CPndltn,CA	0.025	0.025	10/00	0.033	01/02	0.000		0.000	0.083	0.083
TBMCS	WR	3rd MAW El Toro, CA	0.055	0.020	11/00	0.000		0.015	01/03	Continuing	Continuing	
TBMCS	WR	MCSC, Quantico, VA	0.063	0.040	10/00	0.102	01/02	0.040	01/03	Continuing	Continuing	
TBMCS	WR	MarForRes NO, LA	0.009	0.000		0.000		0.015	01/03	Continuing	Continuing	
TBMCS	WR	CG 1st MAW	0.001	0.000		0.000		0.015	01/03	Continuing	Continuing	
TBMCS	MIPR	GSA, Bremerton, WA	0.000	0.202	02/01	0.000		0.000			0.202	0.202
TBMCS	MIPR	ESC, Hanscom AFB,	0.000	0.000		0.000		0.296	01/03	Continuing	Continuing	
TBMCS	WR	2nd MAWCh Pt, NC	0.000	0.000		0.000		0.015	01/03	Continuing	Continuing	
TAOM	WR	MCTSSA, CPndltn,CA	0.086	0.000		0.000		0.000		0.000	0.086	0.086
TAOM	RCP	MCTSSA, CPndltn,CA	0.096	0.000		0.000		0.000		0.000	0.096	0.096
Subtotal Support			1.733	1.185		1.128		2.002		Continuing	Continuing	

Remarks:

CLASSIFICATION:

Exhibit R-3 Cost Analysis											DATE: **February 2002**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**			PROGRAM ELEMENT **0206313M Marine Corps Comm**		PROJECT NUMBER AND NAME **C2273 Air Operations C2 Systems**								
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	FY 03 Cost to Complete	FY 03 Total Cost	Target Value of Contract
Developmental Test & Evaluation											0.000	
Operational Test & Evaluation											0.000	
Tooling											0.000	
MACCS Sustainment	RCP	MCTSSA, CPndltn,CA	0.000	0.000		0.053	01/02	0.061	01/03	Continuing	Continuing	
TBMCS	WR	Crane IN	0.132	0.447	11/00	0.000		0.000		0.000	0.579	0.579
ADCP	RCP	MCTSSA, CPndltn,CA	0.055	0.000		0.000		0.000		0.000	0.055	0.055
Subtotal T&E			0.187	0.447		0.053		0.061		Continuing	Continuing	
Remarks:												
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	FY 03 Cost to Complete	FY 03 Total Cost	Target Value of Contract
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support											0.000	
Travel											0.000	
Labor (Research Personnel)											0.000	
Overhead											0.000	
TBMCS	CPFF	Logicon	0.131	0.178	10/00	0.175	01/02	0.230	01/03	Continuing	Continuing	
AN/TPS-59	CPFF	Logicon	0.451	0.538	10/00	0.000				Continuing	Continuing	
CAC2S	IDIQ	Logicon	1.069	1.665	06/01	1.000	01/02	1.800	01/03	Continuing	Continuing	
CAC2S	FFP	Mevatel, Crstl City VA	0.000	0.250	07/01	0.300	07/02	0.000		Continuing	Continuing	
CAC2S	FFP	MTC	0.000	0.300	07/01	0.000		0.000		0.000	0.300	0.300
CAC2S	WR	NavSup, Norfolk VA	0.000	0.157	07/01	0.000		0.000		0.000	0.157	0.157
External Hold				0.465								
Subtotal Management			1.651	3.553		1.475		2.030		Continuing	Continuing	
Remarks:												
Total Cost			26.279	24.261		24.074		63.320		Continuing	Continuing	

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2002		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Sys**				PROJECT NUMBER AND NAME **C2274 C2 Warfare Systems**				
COST ($ in Millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**7.077**	**9.147**	**5.732**	**4.209**	**5.076**	**5.636**	**5.025**	**Cont**	**Cont**
Defense Emergency Relief Funds (DERF) (Non-Additive)		**4.3***							
Continuing War on Terrorism (Non-Additive)			**3.7***	**3.1***	**4.3***	**3.5***	**2.1***		
RDT&E Articles Qty									

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) Command and Control (C2) Warfare Project includes the following tactical electronic intercept, direction finding, and electronic attack systems:

1. The Tactical Electronic Reconnaissance Processing and Evaluation System (TERPES) is used to process, sort, analyze, display and correlate ES and EA data collected by EA-6B aircraft and maintains the Tactical Electronic Orders of Battle.

2. The Mobile Electronic Warfare Support System, Product Improvement Program (MEWSS-PIP) will be used to collect and process communication and non-communication signals and provide electronic attack capability from a mobile ground platform.

3. Team Portable collection System (TPCS) upgrade is a semi-automated, manpackable/team transportable signals intelligence system that provides communications intercept, radio direction finding analysis and reporting to the Marine Air Ground Task Force (MAGTF) Commander. TPCS- Received $2M from Defense Emergency Relief Funds (DERF). ($3,400K) Team Portable Collection System (TPCS) provides OEF Marines with capability to conduct mission-configurable, multi-platform SIGINT collection and analysis. Conduct integration, testing, and assessment of prototypes.

4. The Radio Reconnaissance Equipment Program (RREP) provides the FMF Radio Battalions, Radio Reconnaissance Platoons (RRP) with mission unique Signals Intelligence/Ground Electronic Warfare SIGINT/EW) Equipment suites. Continuing with an evolutionary acquisition approach, the third suite RREP-SS-2 will provide the RRPs with the capability to conduct SIGINT/EW operations in support of Marine Air Ground Task Force (MAGTF) Commanders during advance force special operations, and other special purpose missions where the use of conventional Radio Battalion assets are not feasible. RREP-SS-2 is a ruggerized, modular; man packable system specifically designed utilizing emerging NDI/COTS/GOTS technology for RRP operations, particularity those conducted under the most austere conditions. The RREP-SS-2 module configuration has an "open systems" architecture that will permit future upgrades by simply installing cutting edge NDI/COTS/GOTS technology into the standard modules. The fourth suite, RREP-SS-3, to be fielded in FY04, will have the added capability to intercept those emerging target sets as identified by the NSA, be operated from remoted positions, and incorporate polymer battery technologies.

RREP - Received $.8M from Defense Emergency Relief Fund (DERF). ($300K) RREP provides OEF Marines with capability to prosecute close-range, low-powered signals of interest. Provide logistics support for fielded systems. Conduct integration, testing, and assessment of prototypes.

5. FLAMES (CESAS) - Received $1.5M from Defense Emergency Relief Fund (DERF).

	FY03	FY04	FY05	FY06	FY07
Continuing War on Terrorism					
Team Portable collection System	3.4	2.8	3.8	3.0	1.6
Radio Reconnaissance Equipment Program	0.3	0.3	0.5	0.5	0.5

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2002
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-7 Operational Sys Dev	**0206313M Marine Corps Communications Sys**	**C2274 C2 Warfare Systems**

(U) PROGRAM ACCOMPLISHMENTS AND PLANS

FY 2001 Accomplishments

- (U) $ 0.600 MEWSS PIP: Operational Testing
- (U) $ 0.000 MEWSS PIP: Completed integration of Electronic Attack module. This effort forward financed with $160K of FY00 funding.
- (U) $ 4.675 MEWSS PIP: Mobility enhancements, data storage/archiving, data import/export, SEI, sensor control.
- (U) $ 0.152 TPCS Upgrade: Completed Operational Testing and Evaluation.
- (U) $ 0.000 TERPES: Begin and completed software and hardware integration for Joint Tactical Terminal (JTT). This effort forward financed with $100K of FY00 funding.
- (U) $ 0.420 TERPES: Continued development of TERPES mission planning software to maintain compatibility with the EA-6B software changes.
- (U) $ 0.100 TERPES: Continued development of advanced communications suite for Joint Interoperability hardware/ software changes.
- (U) $ 0.236 TERPES: Continued DII/COE compliance to reach level 6.
- (U) $ 0.000 TERPES: Continued DII/COE compliance to reach levell 6 and NT migration. This effort forward financed with $31K of FY00 funding.
- (U) $ 0.275 TERPES: Begin enhanced TERPES Fusion Engine Software.
- (U) $ 0.000 TERPES: Begin enhanced TERPES Fusion Correlator Software. This effort forward financed with $509K of FY00 funding.
- (U) $ 0.366 TERPES: Continued to enhance TERPES Fusion Correlator Software.
- (U) $ 0.201 RREP: Development efforts in support of remote control operations (SS-3).
- (U) $ 0.052 Funds set aside for ONR Taxes.

(U) Total $ 7.077

FY 2002 Planned Program

- (U) $ 2.300 MEWSS PIP: Funds system enhancements to include efforts toward full DII/COE compliance.
- (U) $ 2.556 MEWSS PIP: Development work to transition from centralized software architecture to a common EW architecture.
- (U) $ 0.211 TPCS Upgrade: Begin System Engineering and Technical Assistance (SETA) (CSC).
- (U) $ 0.293 TPCS Upgrade: Software revision/upgrade, system enhancements.
- (U) $ 0.650 TERPES: Continue development of TERPES mission planning software to maintain compatibility with EA-6B software changes and begin ICAP III final integration.
- (U) $ 0.150 TERPES: Continue development of advanced communications suite for Joint Interoperability hardware/software changes.
- (U) $ 0.500 TERPES: Continue DII/COE compliance to reach level 7.
- (U) $ 0.450 TERPES: Continue DII/COE compliance to reach level 7 and NT migration.
- (U) $ 0.618 TERPES: Continue Enhanced TERPES Fusion Engine Software.
- (U) $ 0.450 TERPES: Continue Enhanced TERPES Correlator Software.
- (U) $ 0.231 TERPES: Continue TEPP/TSP enhancement processing.
- (U) $ 0.200 TERPES: Continue Hardware research testing and integration.
- (U) $ 0.150 TERPES: In-House program management.
- (U) $ 0.100 RREP: Complete integration GOT/COTS electronic attack (EA) capability (SS-2).
- (U) $ 0.288 RREP: Integrate GOTS/COTS electronic attack (EA) capability (SS-3).

(U) Total $ 9.147

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2002
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Sys**	PROJECT NUMBER AND NAME **C2274 C2 Warfare Systems**

(U) FY 2003 Planned Program:

- (U) $ 0.600 MEWSS PIP: Begin development of upgraded comint subsystem with objective of reducing physical profile, increasing capabilities, and extending effective service life.
- (U) $ 0.700 MEWSS PIP: Develop simplified communications chassis.
- (U) $ 0.409 MEWSS PIP: Continue efforts towards full DII/COE compliance.
- (U) $ 0.242 TPCS Upgrade: Continue System Engineering and Technical Assistance (SETA) (CSC).
- (U) $ 0.440 TPCS Upgrade: Software upgrades/system enhancements.
- (U) $ 0.600 TERPES: Continue development of TERPES mission planning software to maintain compatibility with EA-6B software changes and continue ICAP III final integration.
- (U) $ 0.150 TERPES: Continue development of advanced communications suite for Joint Interoperability hardware/software changes.
- (U) $ 0.350 TERPES: Complete DII/COE compliance to reach level 7.
- (U) $ 0.450 TERPES: Continue DII/COE compliance to reach level 7 and NT migration.
- (U) $ 0.564 TERPES: Continue Enhanced TERPES Fusion Engine Software.
- (U) $ 0.450 TERPES: Continue Enhanced TERPES Fusion Correlator Software.
- (U) $ 0.241 TERPES: Continue TEPP/TSP enhancement processing.
- (U) $ 0.241 TERPES: Continue Hardware research testing and integration.
- (U) $ 0.100 TERPES: In-House program management.
- (U) $ 0.195 RREP: Complete integration GOTS/COTS electronic attack (EA) capability (SS-3).

(U) Total $ 5.732

(U) PROJECT CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	7.592	5.429	
(U) Adjustments from the President's Budget:			
(U) SBIR/STTR Transfer	-0.190		
(U) Execution Adjustment	-0.281		
(U) Minor Affordability Adjustment		-0.082	
(U) Program Adjustment	-0.044	3.800	
(U) FY 2003 President's Budget:	7.077	9.147	5.732

CHANGE SUMMARY EXPLANATION:

(U) Funding: See Above.

(U) Schedule: Not Applicable.

(U) Technical: Not Applicable.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Sys**	PROJECT NUMBER AND NAME **C2274 C2 Warfare Systems**

(U) B. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) PMC BLI 474900 Mod Kits INTEL TERPES	0.000	3.004	0.000	2.910	0.000	3.022	0.000	Continuing	Continuing
(U) PMC BLI 463600 Modification Kits MEWSS	4.891	14.614	26.127	27.063	0.711	1.206	0.511	Continuing	Continuing
(U) PMC BLI 474900 Mod Kits INTEL TPCS	2.809	0.000	0.000	2.465	2.071	0.000	0.000	0	7.345
(U) PMC BLI 474700 Intell Suppt Eq RREP	0.000	0.000	3.979	0.000	0.000	4.233	0.000	0	8.212

(U) Related RDT&E:
(U) (U) PE 0305885G (Tactical Cryptologic Program)

(**U) C. ACQUISITION STRATEGY TERPES:** The acquisition of components for the TERPES upgrade refresh will maximize the use of existing equipment, NDI/COTS/GOTS/GFE equipment/software. The integration effort for TERPES hardware components will be accomplished under the control of the WSSA, NAWCWD. Software integration and support will be accomplished by contractors under the control of the TERPES WSSA NAWCWD. These activities report to, and are directed by, the program Manager, Command Information Systems, Marine Corps Systems Command (MARCORSYSCOM). This strategy accomplishes several goals: standardization, use equipment than can be serveral goals: standardization, use equipment that can be acquired and fielded quickly, reduce logitics requirements, and reduce costs of software maintenance.

(**U) C. ACQUISITION STRATEGY MEWSS PIP:** The MEWSS PIP is initiating Marine Corps Systems Command-administered contracts as folow-on to the Army CECOM Intellegence and Electronic Warfare Common Sensor (IEWCS) contract used for development of the three MEWSS PIP LRIP vehicles. These contracts are being pursued as sole source to Lockheed Martin systems Integration in Owego, New York.

(U) C. ACQUISITION STRATEGY TPCS: The ever-increasing sophistication of target threats and information technology necessitates an evolutionary acquisition approach. TPCS will make incremental improvements through maximum use of COTS, GOTS and NDI. The contract is a Contract Cost Plus Fixed Fee.

(U) C. ACQUISITION STRATEGY RREP: The RREP will incorporate and integrate cutting edge technologies through the use of Commercial off the Shelf (COTS) components to include Marine Corps Common Hardware components and Government off the Shelf (GOTS) DII COE compliant software. Contract is Cost Plus Fixed Fee (CPFF).

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2002
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Sys**	PROJECT NUMBER AND NAME **C2274 C2 Warfare Systems**	

(U) D. SCHEDULE PROFILE:

MEWSS-PIP Milestone Schedule

	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05
MILESTONE 0								
MILESTONE 1/II								
OT PHASE 1	X							
OT PHASE 2				X				
MILESTONE III					X			
PRODUCTION CONTRACT AWARD					X			
PRODUCTION					X ------	----------	----------	
IOC					X			
FOC								X

Program Funding Summary	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(APPN, BLI #, NOMEN)									
(U) RDT&E,N	5.275	4.856	1.709	0	0	0	0	0	11.84
(U) PMC, BLI# 463600 Mod Kits MEWSS	4.891	14.614	26.127	27.063	0.711	1.206	0.511	Continuing	Continuing

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2002
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Sys**	PROJECT NUMBER AND NAME **C2274 C2 Warfare Systems**

TPCS UPGRADE
MILESTONE SCHEDULE

PHASE	FY 98	FY 99	FY 00	FY 01	FY 02
MILESTONE 0					
MILESTONE I/II					
OT			x		
MILESTONE III			x		
PRODUCTION CONTRACT AWARD				x	
PRODUCTION				x	
IOC					x
FOC					x

Program (APPN, BLI #, NOMEN)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) RDT&E,N	0.152	0.504	0.682	0.354	0.355	0.790	0.690	0.000	3.527
(U) PMC BLI 474900 Mod Kits INTEL (TPCS)	2.809	0	0	2.465	2.071	0	0	0	7.345

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2002
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Sys**	PROJECT NUMBER AND NAME **C2274 C2 Warfare Systems**

RREP
MILESTONE SCHEDULE

PHASE	FY 98	FY 99	FY 00	FY 01	FY 02
MS II (SS-2)	2Q				
MS III (SS-2)			1Q		
ELECTRONIC ATTACK (EA MODULE)			3Q		
MS 0/I (SS-3)			4Q		
REMOTE EA CAPABILITY				2Q	
IOC/FOC (SS-2)				3Q	
MS II (SS-3)				3Q	
MS III (SS-3)					4Q

Program (APPN, BLI #, NOMEN)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) RDT&E,N	0.201	0.388	0.195	0.312	0.451	0.460	0.471	Continuing	Continuing
(U) PMC BLI 474700 Intell Suppt EQ RREP	0.000	0.000	3.979	0.000	0.000	4.233	0.000	0.000	8.212

CLASSIFICATION:

Exhibit R-3 Cost Analysis			DATE: **February 2002**									
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**		PROGRAM ELEMENT **0206313M Marine Corps Communication Sys**			PROJECT NUMBER AND NAME **C2274 C2 Warfare Systems**							
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development												
Ancillary Hardware Development												
Systems Engineering												
Licenses												
Tooling												
GFE												
Award Fees												
MEWSS	CPFF	Lockheed Martin	5.941	5.275	08/01	4.856	11/01	1.709	11/02	Continuing	Continuing	
TPCS Upgrade	CPFF	DAC/BTG	0.508	0.152	01/01	0.293	01/02	0.440	01/03	Continuing	Continuing	
TERPES	RCP	NSWC, Crane In	0.000	0.262	05/01	0.699	10/01	0.863	10/02	Continuing	Continuing	
TERPES	MIPR	SMC/ADF El Segundo	0.000	0.275	01/01	1.318	10/01	1.167	10/02	Continuing	Continuing	
TERPES	RCP	NAWCWPNS	1.569	0.520	05/01	0.700	02/02	0.600	02/03	Continuing	Continuing	
TERPES	WR	PT Mugu, CA	0.429	0.248	05/01	0.432	12/01	0.241	12/02	Continuing	Continuing	
RREP	CPFF	PM-CISS NEW,VA	0.535	0.201	01/01	0.388	01/02	0.195	01/03	Continuing	Continuing	
ONR Taxes				0.052								
Subtotal Product Development			8.982	6.985		8.686		5.215		Continuing	Continuing	
Remarks:												

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Development Support Equipment												
Software Development												
Training Development												
Integrated Logistics Support												
Configuration Management												
Technical Data												
TPCS Upgrade	CPFF	CSC	0.225	0.000	02/01	0.211	10/01	0.242	10/02	Continuing	Continuing	
TERPES	WR	NAWCWPNS, Pt Mugu	0.099	0.092	02/01	0.100	11/01	0.100	11/02	Continuing	Continuing	
TERPES	RCP	LOGICON	0.000	0.000		0.150	01/02	0.175	01/03	Continuing	Continuing	
Subtotal Support			0.324	0.092		0.461		0.517		Continuing	Continuing	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis					DATE: **February 2002**							
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**			PROGRAM ELEMENT **0206313M Marine Corps Communication Sys**		PROJECT NUMBER AND NAME **C2274 C2 Warfare Systems**							
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation												
Operational Test & Evaluation												
Tooling												
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Contractor Engineering Support												
Government Engineering Support												
Program Management Support												
Travel												
Labor (Research Personnel)												
Overhead												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Total Cost				7.077		9.147		5.732		Continuing	Continuing	

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2002**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Development**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communication Systems**				PROJECT NUMBER AND NAME **C2275 Radio Systems**				
COST ($ in Millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**0.000**	**0.000**	**0.597**	**1.393**	**1.787**	**0.991**	**0.990**	**Cont**	**Cont**
RDT&E Articles Qty									

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) Joint Tactical Radio System - JTRS - A joint program established to develop and validate a software and hardware architecture for the development of modern, digital communication systems. It is a software programmable, multi-band, multi-mode radio that provides integrated data, video, and voice to support dissemination of battlespace command and control data, Situational Awareness (SA) data, and C2 voice circuits. JTRS is an integrated solution to support mechanized, mobile, and dismounted forces where the ground domain versions will provide vehicle, manpack, and hand-held radios. The system will also provide embedded networking and information security.

(U) RadBn Mods - Received $2M from Defense Emergency Relief Funds (DERF). Integration into Radio Battalion architecture for hardware and software.

PROGRAM ACCOMPLISHMENTS AND PLANS

(U) FY2001 Accomplishments: Not Applicable.

(U) FY2002 Planned Program: Not Applicable.

(U) FY 2003 Planned Program:

- (U) $ 0.597 JTRS: Begin Integration/Migration Studies and Analysis.

(U) Total $ 0.597

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Development**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communication Systems**	PROJECT NUMBER AND NAME **C2275 Radio Systems**

(U) PROJECT CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2003 NAVCOMPT Budget:	0.000	0.000	
(U) Adjustments from the NAVCOMPT Budget:			
(U) SBIR/STTR Transfer			
(U) Execution Adjustment			
(U) Minor Affordability Adjustment			
(U) Program Adjustment OSD			
(U) FY 2003 President's Budget:	0.000	0.000	0.597

CHANGE SUMMARY EXPLANATION:
(U) Funding: See Above.
(U) Schedule: Not Applicable.
(U) Technical: Not Applicable.

(U) B. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) PMC, BLI# 463300 Radio Systems(JTRS)	0.000	0.000	0.000	0.000	4.518	17.295	17.262	Continuing	Continuing

(U) Related RDT&E: Not Applicable

(U) C. ACQUISITION STRATEGY:

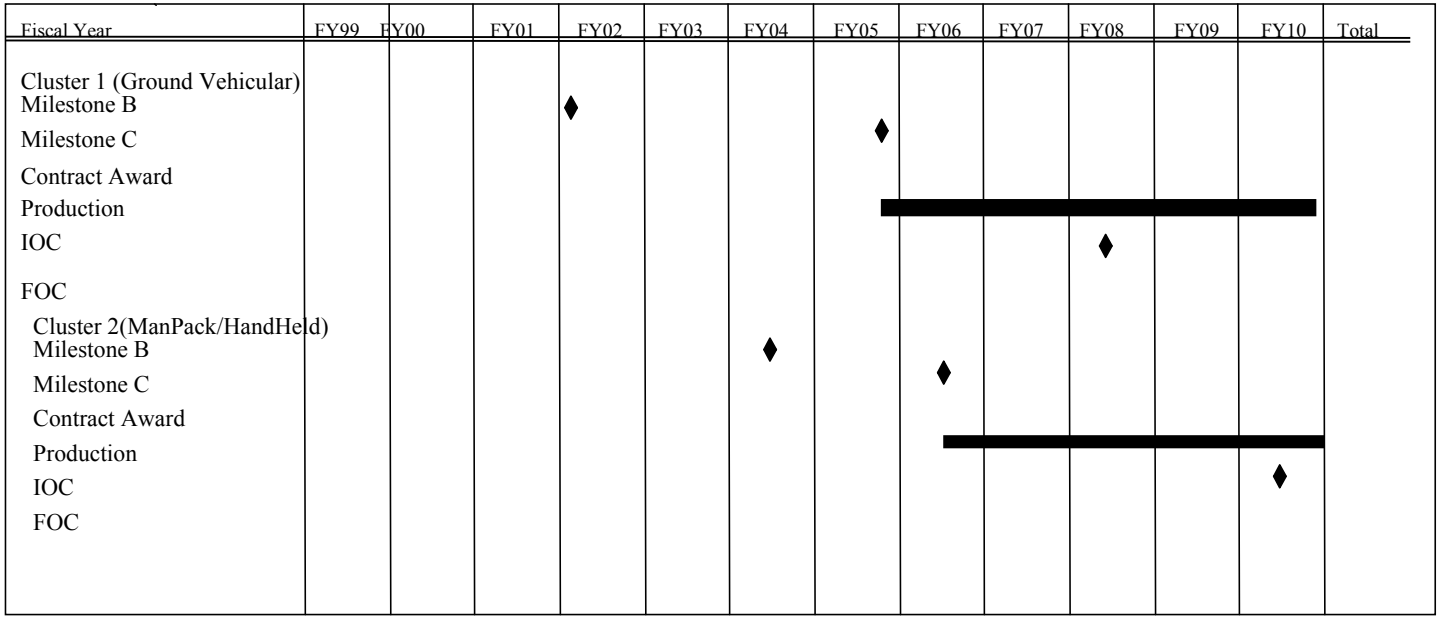
(U) JTRS - The acquisition strategy for JTRS is based on an open standard Software Communications Architecture (SCA) that allows independent development of JTR Sets and waveform applications. JTR Sets include all hardware components and the necessary software infrastructure consisting of an operating system, the core framework (CF), specific functional services, and integrated waveform applications. The acquisition strategy is divided into two phases: Cluster 1 (vehicular variant) and Cluster 2 (Manpack/Hand held variant). Ultimately the JTRS family of radios will replace all legacy radio systems as they reach the end of their service life.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-7 Operational Sys Development	**0206313M Marine Corps Communication Systems**	**C2275 Radio Systems**

Macro Program Schedule

JT TACTICAL RADIO SYSTEM



Program Funding Summary (APPN, BLI #, NOMEN)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) RDT&E,N	0.000	0.000	0.597	0.893	1.787	0.991	0.990	0.000	5.258
(U) PMC BLI# 463300 Radio Systems	0.000	0.000	0.000	0.000	4.518	17.295	17.262	0.000	CONT

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Systems**			PROJECT NUMBER AND NAME **C2276 Communications Switching & Control Systems**					
COST ($ in Millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**0.186**	**0.969**	**4.766**	**0.602**	**0.603**	**0.603**	**0.604**	**Cont**	**Cont**
RDT&E Articles Qty									

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) DMS is an OSD-mandated program to integrate Automatic Digital Network (AUTODIN) and E-Mail into a single, secure, DoD message communications system. DMS will expand writer-to-reader connectivity, support, and message security services. Organizations and individuals will be able to create, edit, send, receive, read, and process organizational and individual messages, secured with end-to-end protection, direct from desktop terminals/personal computers in their workspaces. DMS will do everything our current NT MIGRATION FY99 and AUTODIN systems do as well as provide connectivity to all users in DoD

(U) The Joint Network Management System (JNMS) is a CINC and Commander, Joint Forces joint communications planning and management system. It provides communication planners with the capabilities to conduct high level planning; detailed planning and engineering; monitoring; control and reconfiguration; spectrum planning and management; and security of systems and networks supporting joint operations. The CINC will utilize JNMS to support a deployed JTF Joint Communications Control Center (JCCC). All joint level managers and Service component headquarters level system controls (SYSCONs) will use the JNMS. Service components will use the JNMS to ensure that their plans are coordinated with the CINC's Annex K.

(U) The ULCS PIP Transition Switch Module (TSM) will provide a flexible Unit Level Switch capability that bridges legacy Tri-Tac switches with current commercial technology to provide Marine maneuver elements with more robust voice/data switching, data transport and bandwidth management capabilities. This program will maintain USMC joint interoperability as the other Services transition to COTS switching technologies

(U) PROGRAM ACCOMPLISHMENTS AND PLANS

FY 2001 Accomplishments

- (U) $ 0.186 DMS: Supported software and hardware integration/testing. Incorporated evolutionary security products into the unclassified DMS architecture within a Marine Corps-unique network infrastructure.

(U) Total $ 0.186

FY 2002 Planned Program

- (U) $ 0.969 JNMS: Begin development of JNMS hardware suites and upgrade SPEED for DII COE LVL 6 compliance

(U) Total $ 0.969

(U) FY 2003 Planned Program:

- (U) $ 1.101 JNMS: Complete development and test of JNMS hardware suites
- (U) $ 3.665 ULCS TSM: Development and testing of Engineering Development Models (EDM)

(U) Total $ 4.766

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-7 Operational Sys Dev	**0206313M Marine Corps Communications Systems**	**C2276 Communications Switching & Control Systems**

(U) PROJECT CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	0.224	0.986	
(U) Adjustments from the President's Budget:			
(U) SBIR/STTR Transfer			
(U) Execution Adjustment	-0.028		
(U) Minor Affordability Adjustment		-0.017	
(U) Program Adjustment	-0.010		
(U) FY 2003 President's Budget:	0.186	0.969	4.766

CHANGE SUMMARY EXPLANATION:
(U) Funding: See Above.
(U) Schedule: Not Applicable.
(U) Technical: Not Applicable.

(U) B. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U)PMC BLI 463400 Communications Switching and Control Systems									
DMS	3.124	0.000	3.974	5.953	0.000	0.000	0.000	0.000	13.051
JNMS	0.000	0.000	0.000	8.235	7.668	0.000	0.000	0.000	15.903
ULCS TSM	0.000	0.000	0.000	25.790	45.688	84.577	19.896	0.000	175.951
BLACKJACK DIGITAL FAX	0.000	0.987	0.000	0.000	0.000	0.000	0.000	0.000	0.987

(U) Related RDT&E: Not Applicable.

(**U) C. ACQUISITION STRATEGY JNMS:** The JNMS acquisition strategy is in accordance with DoD 5000.2-R; Mandatory Procedures for MDAPs and MAIS Acquisition Programs. It is based on awarding a competitive contract for the development of the JNMS software baseline. The contract will be awarded using a best value, full and open competition source selection process. It will stress the use of COTS for satisfying the requirement. If COTS is not available, then Government-off-the-Shelf (GOTS) products will be the next strategy emphasized. A performance specification will be used as the technical basis for the JNMS. The JNMS is an Acquisition Category (ACAT) III, non-major joint program. The Milestone Decision Authority (MDA) for the JNMS is the Program Executive Officer, Command, Control and Communications Systems (PEO C3S).

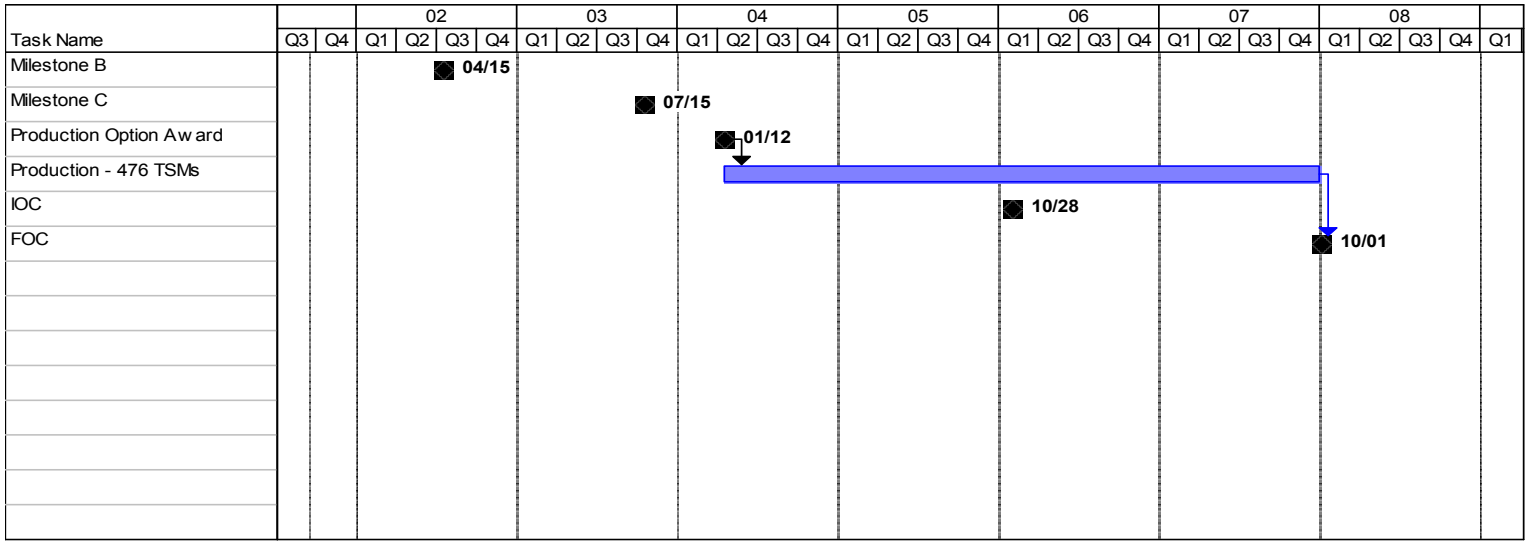
(U) C. ACQUISITION STRATEGY ULCS/TSM: The TSM acquisition strategy calls for use of FY03 R&D to develop and demonstrate a system of sufficient maturity for production (Milestone C). There will be a single contract award for LRIP, testing and full-rate production after successful completion of test.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Systems**	PROJECT NUMBER AND NAME **C2276 Communications Switching & Control Systems**

(U) D. SCHEDULE PROFILE:

TSM

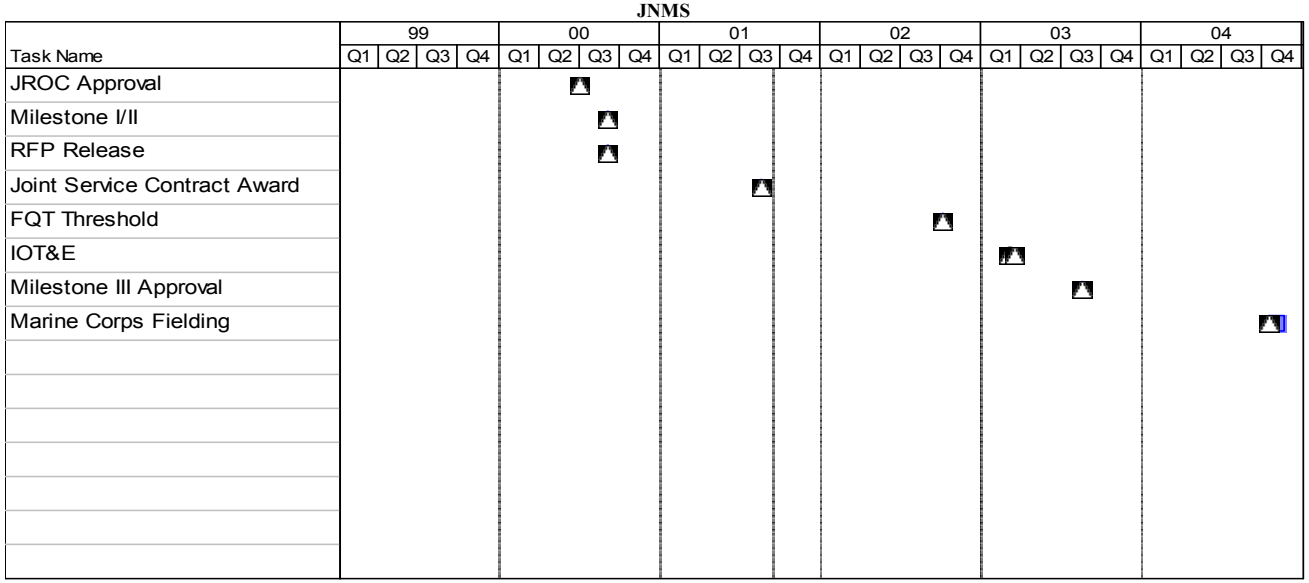


Program Funding Summary	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(APPN, BLI #, NOMEN)									
(U) RDT&E,N	0.000	0.000	3.665	0.000	0.000	0.000	0.000	0.000	3.665
(U) PMC BLI# 463400 CommSwitch& Ctl Sys (TSM)	0.000	0.000	0.000	25.790	45.688	84.577	19.896	0.000	175.951

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-7 Operational Sys Dev	**0206313M Marine Corps Communications Systems**	**C2276 Communications Switching & Control Systems**

JNMS



Program Funding Summary (APPN, BLI #, NOMEN)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) RDT&E,N	0.000	0.969	1.101	0.602	0.603	0.603	0.604	Continuing	Continuing
(U) PMC BLI# 463400 CommSwitch& Ctl Sys (JNMS)	0.000	0.000	0.000	8.235	7.668	0.000	0.000	0.000	15.903

CLASSIFICATION:

Exhibit R-3 Cost Analysis			DATE: **February 2002**										
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**			PROGRAM ELEMENT **0206313M Marine Corps Communications Sys**			PROJECT NUMBER AND NAME **C2276 Communications Switching & Control Systems**							
Cost Categories (Tailor to WBS, or Sys/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Dev												
Ancillary Hardware Dev												
Systems Engineering												
Licenses												
Tooling												
GFE												
Award Fees												
JNMS	CPFF	MCSC	0.000	0.000		0.594	02/02	0.375	10/02	Continuing	Continuing	
TSM	CPFF	TBD	0.000	0.000		0.000		1.921	10/02	0.000	1.921	1.948
Subtotal Product Dev			0.000	0.000		0.594		2.296		Continuing	Continuing	
Remarks:												

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Development Support Equip												
Software Development												
Training Development												
Integrated Logistics Support												
Configuration Management												
Technical Data												
DMS	MIPR	CECOM	0.255	0.186		0.000		0.000		0.000	0.441	0.441
JNMS	CPFF	LOGICON	0.000	0.000		0.250	12/01	0.200	10/02	Continuing	Continuing	
TSM	CPFF	TBD	0.000	0.000		0.000		0.242	10/02	0.000	0.242	0.242
Subtotal Support			0.255	0.186		0.250		0.442		Continuing	Continuing	
Remarks:												

Exhibit R-3 Cost Analysis											DATE: **February 2002**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**			PROGRAM ELEMENT **0206313M Marine Corps Communications Sys**			PROJECT NUMBER AND NAME **C2276 Communications Switching & Control Systems**							
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Eval												
Operational Test & Eval												
Tooling												
JNMS	MIPR	TBD	0.000	0.000		0.000		0.400	10/02	Continuing	Continuing	
TSM	CPFF	TBD	0.000	0.000		0.000		0.950	10/02	0.000	0.950	0.950
Subtotal T&E			0.000	0.000		0.000		1.350		Continuing	Continuing	
Remarks:												
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Contractor Engineering Suppt												
Govt Engineering Suppt												
Program Management Suppt												
Travel												
Labor (Research Personnel)												
Overhead												
JNMS	FFP	TBD	0.000	0.000		0.125	02/02	0.126	10/02	Continuing	Continuing	
TSM	FFP	TBD	0.000	0.000		0.000		0.552	10/02	0.000	0.552	0.552
Subtotal Management			0.000	0.000		0.125		0.678		Continuing	Continuing	
Remarks:												
Total Cost			0.255	0.186		0.969		4.766		Continuing	Continuing	

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2002**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Systems**			PROJECT NUMBER AND NAME **C2277 Systems Engineering & Integration**					
COST ($ in Millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**10.084**	**13.244**	**9.912**	**11.810**	**11.011**	**12.619**	**11.857**	**Cont**	**Cont**
RDT&E Articles Qty									

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) This project provides funds for engineering, test, and evaluation activity, which ensures that the systems being developed within the Program Element (PE) employ consistent standards for interoperability and, to the maximum extent feasible, use hardware, and software which is uniform across programs.

1. The Marine Air-Ground Task Force Command, Control, Communications, Computers, and Intelligence Systems Engineering and Integration, Coordination. (MAGTF C4I SE&IC) subproject is a non-acquisition effort which provides centralized planning and execution of MAGTF C4I Systems; it develops, certifies and manages the configuration of the MAGTF C4I Systems/Technical Architecture and its implementation; it is also used to develop and test common hardware and software for use in MAGFT C4I Systems; MAGTF C4I SE&I also funds USMC participation in joint planning, technical standards development and joint exercise participation. MAGTF SE&IC changes name to MAGTF SEI&C in FY00.
2. Global Broadcast Service (GBS) Terminal – The overall GBS is a satellite system composed of a space segment, a transmit suite and a Receive Suite. It provides near worldwide high data rate dissemination of large information products such as classified and unclassified intelligence and video, theater message traffic, joint and service-unique news, weather and MWR programming to deployed or garrison forces via small user platforms.
3. MAGTF C4I SEI&C Joint Distributed Engineering Plant (JDEP) is a DoD mandated program to evaluate the interoperability of the Family of Systems (FoS) C4ISR configurations that support joint forces, evaluate the interoperability of new acquisition systems, and provide an environment for engineering analysis to correct systems deficiencies and develop new capabilities.
4. Joint Warrior Interoperability Demos (JWID) is a JCS-mandated program to demonstrate new C4I interoperability concepts for the warrior. JWID offers the opportunity for demonstrations of evolving technologies in interoperability, information dissemination, fusing and digital communications.
5. The Joint Interoperability of Tactical Command and Control Systems (JINTACCS) is a Joint Chiefs-of-Staff (JCS)-mandated program for joint development, implementation, and testing of data links under the direction of the Joint Interoperability Engineering Organization (JIEO).
6. Common Computer Resources (CCR) Marine Common Hardware Suite (MCHS) mission – Central and standardized management and acquisition of all Tactical common computer hardware and infrastructure adopting the Joint Defense Information Infrastructure (DII) Common Operating Environment (COE) with consolidated Integrated Logistics Support. Ensure the environment remains in synchronization with computer hardware technology hardware improvements. The mission supports the Commandant's Planning Guidance and input to the Marine Corps Master Plan.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-7 Operational Sys Dev	**0206313M Marine Corps Communications Systems**	**C2277 Systems Engineering & Integration**

PROGRAM ACCOMPLISHMENTS AND PLANS

FY 2001 Accomplishment

- (U) $ 1.158 JWID: Participated in JWID, a JCS-mandated program, to demonstrate new C4I interoperability concepts. In JWID-01, USMC is the service lead. Conducted primary planning equipment preparation, and hosting. JWID-01 offers the opportunity for demonstrations of emerging technologies in interoperability, information dissemination, fusing and communications.
- (U) $ 1.001 JINTACCS: Participated in JINTACCS, a JCS-mandated program aimed at ensuring interoperability of tactical systems. Provided analysis, engineering and technical support in developing joint standards. Provided interoperability testing/certification in support of C4I systems. Provided technical support in various joint programs and ACTDs.
- (U) $ 6.892 MAGTF SEI&C: Provided systems engineering and technical support for configuration managment of MAGTF C4I system and its migration to the DII COE. Provide analysis, studies and reviews in the development and implementation of the COE migration strategy. Continued the development of the MAGTF C4I Systems/Technical Architecture and Repository (MSTAR). Supported D-30 process to integrate Marine C4I systems onto amphibious ships for MEU deployments. Provided engineering support for remaining Y2K problems within MAGTF C4I systems. Conducted engineering verification and validation for the family of MAGTF C4ISR systems that support situationa awareness for Ground Combat Element (GCE) component. Developed and maintained a comprehensive Information Assurance program for MAGTF C4ISR. Provided USMC share of ASCIET exercise per established MOA.
- (U) $ 0.000 MAGTF SEI&C: Provided engineering and technical support for configuration management of MAGTF C4I system and it migration to the DII COE. This effort forward financed with $177K of FY00 funding.
- (U) $ 0.166 GBS: Provided for Product Development and Integration
- (U) $ 0.505 GBS: Provided Support and Management for Confidence/User Evaluation.
- (U) $ 0.230 GBS: Operational Test Planning and Integration Testing Planning.
- (U) $ 0.004 CCR MCHS: Tested and selected computer hardware products for the Marine Corps Common Hardware Suite (MCHS).
- (U) $ 0.128 Funds set aside for ONR Taxes

(U) Total $ 10.084

FY 2002 Planned Program:

- (U) $ 2.563 JWID: Participate in JWID, a JCS mandated program, to demonstrate new C4I interoperability concepts. In FY02, JWID is concerned with transitioning the best products from the JWID-01 exercise in FY01 into the acquisition system. It will also support management and planning of exercise JWID-03.
- (U) $ 1.680 JINTACCS: Participate in JINTACCS, a JCS-mandated program aimed at ensuring interoperability of tactical systems. Provide analysis Engineering and technical support in developing joint standards. Provide interoperability testing/certification in support of C4I systems. Provide technical support in various joint programs and ACTD's.
- (U) $ 4.324 MAGTF SEI&C: Provide engineering and technical support for configuration management of MAGTF C4I systems and its migration to the DII COE. Maintain MSTAR system as technical roadmap to MAGTF C4I system integration. Provide analysis, studies and reviews in the development and implementation of the COE migration strategy. Analyze the movement of MAGTF C4I systems to joint standards to mandated levels and provide technical recommendations to correct deficiencies. Continue engineering support to D-30 Amphib Ready Group (ARG) preparation process.
- (U) $ 0.858 MAGTF SEI&C (JDEP): DoD mandated program to evaluate the interoperability of the Family of Systems (FoS) C4ISR configurations that support joint forces, evaluate the interoperability of new acquisition systems, and provide an environment for engineering analysis to correct systems deficiencies and develop new capabilities.
- (U) $ 1.037 Ballon Upgrade:
- (U) $ 0.624 GBS: Continue support and Management for Confidence/User Evaluation.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-7 Operational Sys Dev	**0206313M Marine Corps Communications Systems**	**C2277 Systems Engineering & Integration**

- (U) $ 0.460 GBS: Operational Testing and Integration Testing.
- (U) $ 1.698 CCR MCHS: Provide for research, evaluation, test and selection of computer hardware products for the Marine Corps Common Hardware Suite (MCHS). Develop MCHS system specifications and baselines; research and analyze computer technologies and hardware; conduct performance, compatibility and environmental testing; support commercial product selection and application in support of Tactical Systems.

(U) Total $ 13.244

(U) FY 2003 Planned Program:

- (U) $ 1.161 JWID: Participate in JWID, a JCS mandated program, to demonstrate new C4I interoperability concepts. In FY03, JWID is concerned with transitioning the best products from the JWID-02 exercise in FY02 into the acquisition system. It will also support management and planning of exercise JWID-04.
- (U) $ 1.744 JINTACCS: Participate in JINTACCS, a JCS-mandated program aimed at ensuring interoperability of tactical systems. Provide analysis Engineering and technical support in developing joint standards. Provide interoperability testing/certification in support of C4I systems. Provide technical support in various joint programs and ACTD's.
- (U) $ 4.425 MAGTF SEI&C: Provide systems engineering and technical support to Program Managers of Marine Corps C4ISR systems. Assist Program Managers in Command, Control, Communications, Computers and Intelligence Support Plan (KPPs) are met. Continue engineering support to D-30 Amphib Ready Group (ARG) preparation process.
- (U) $ 1.044 MAGTF SEI&C (JDEP): Continue Marine Corps participation in DoD mandated program to evaluate the interoperability of the Family of Systems (FoS) C4ISR configurations that support joint forces, evaluate the interoperability of new acquisition systems, and provide an environment for engineering analysis to correct systems deficiencies and develop new capabilities.
- (U) $ 1.538 CCR MCHS: Provide for research, evaluation, test and selection of computer hardware products for the Marine Corps Common Hardware Suite (MCHS). Develop MCHS system specifications and baselines; research and analyze computer technologies and hardware; conduct performance, compatibility and environmental testing; support commercial product selection and application in support of Tactical Systems.

(U) Total $ 9.912

(U) PROJECT CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	7.904	12.316	
(U) Adjustments from the President's Budget:			
(U) SBIR/STTR Transfer	-0.072		
(U) Execution Adjustment	-0.143	-0.172	
(U) Minor Affordability Adjustment			
(U) Program Adjustment	2.395	1.100	
(U) FY 2003 President's Budget:	10.084	13.244	9.912

CHANGE SUMMARY EXPLANATION:

(U) Funding: See Above.

(U) Schedule: Not Applicable.

(U) Technical: Not Applicable.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N /BA-7 Operational Sys Dev	**0206313M Marine Corps Communications Systems**	**C2277 Systems Engineering & Integration**	

(U) B. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
PMC BLI 463000 CCR	80.386	21.030	38.974	48.274	49.101	58.888	71.643	Cont	Cont
PMC BLI 463300 RADIO SYSTEMS	15.082	48.780	25.528	10.544	27.434	17.295	17.262	161.925	161.925

(U) Related RDT&E:

(U) PE 0604817A

(U) PE 0206623M, Marine Corps Ground Combat/Supporting Arms Systems

(U) C. ACQUISITION STRATEGY JWID, JINTACCS MAGTF SE&IC, GBS, AND CCR: Work will be led in-house. Necessary contractor support will be acquired using already existing contracts.

(U) D. SCHEDULE PROFILE: Not Applicable.

CLASSIFICATION:

Exhibit R-3 Cost Analysis					DATE: **February 2002**							
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**			PROGRAM ELEMENT **0206313M Marine Corps Communication Sys**		PROJECT NUMBER AND NAME **C2277 Systems Engineering & Integration**							
Cost Categories (Tailor to WBS, or Sys/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Dev											0.000	
Ancillary Hardware Dev											0.000	
Systems Engineering											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
JWID	RCP	MCSC Quantico, VA	0.000	0.747	10/00	0.637	10/01	0.640	12/02	Continuing	Continuing	
JWID	WR	NSWC Dahlgren, VA	0.000	0.000		0.100	05/02			Continuing	Continuing	
JWID	WR	MCSC Quantico, VA	0.000	0.000		0.117	10/01	0.021	10/02	Continuing	Continuing	
GBS	WR	MCTSSA, Cp Pndltn, CA	0.000	0.100	11/00	0.000				0.000	0.100	0.100
GBS	WR	MCSC Quantico, VA	0.000	0.066	10/00	0.080	10/01			0.000	0.146	0.146
JINTACCS	SS	CECOM Ft Monmouth NJ	0.029	0.000		0.000		0.000		0.000	0.029	0.029
BALLON UPGRADE	TBD	TBD				1.037						
Subtotal Product Dev			0.029	0.913		1.971		0.661		Continuing	Continuing	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis			DATE: **February 2002**									
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**		PROGRAM ELEMENT **0206313M Marine Corps Communication Sys**			PROJECT NUMBER AND NAME **C2277 Systems Engineering & Integration**							
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Development Support Equip											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
JWID	C/FPP	Logicon, Stafford, VA	0.315	0.411	10/00	1.709	10/01	0.500	10/02	Continuing	Continuing	
MAGTF SEI&C	MIPR	CECOM Ft Monmouth NJ	0.350	0.230	02/01	0.369	12/01			Continuing	Continuing	
MAGTF SEI&C	CPFF	OSEC, Stafford, VA	0.080	0.223		0.000				Continuing	Continuing	
MAGTF SEI&C	C/FFP	Logicon,Stafford, VA	4.133	1.068	10/00	0.680	10/01	0.985	10/02	Continuing	Continuing	
MAGTF SEI&C	WR	MCSC, Quantico, VA	0.268	0.140	10/00	0.106	10/01	0.110	10/02	Continuing	Continuing	
MAGTF SEI&C	MIPR	Eglin AFB, FL	1.261	0.000		0.000		0.000		Continuing	Continuing	
MAGTF SEI&C	MIPR	ASCIET JPO	0.000	0.325	11/00	0.000		0.000		0.000	0.325	0.325
MAGTF SEI&C	WR	II MEF	0.000	0.030	11/00	0.430	11/01	0.370	11/02	Continuing	Continuing	
MAGTF SEI&C	MIPR	GSA	0.000	0.140	11/00	0.205	11/01	0.000		Continuing	Continuing	
MAGTF SEI&C	WR	NSWC Crane IN	0.000	0.108	11/00	0.214	11/01	0.000		Continuing	Continuing	
MAGTF SEI&C	RCP	MCSC, Quantico, VA	0.000	0.045		0.000		0.000		0.000	0.045	0.045
MAGTF SEI&C	MIPR	CECOM Ft Monmouth NJ	0.000	0.613		0.000		0.000		0.000	0.613	0.719
MAGTF SEI&C	WR	MCSC, Quantico, VA	0.000	0.085	12/00	0.000		0.000		0.000	0.085	0.085
MAGTF SEI&C (JDEP)	TBD	TBD	0.000	0.000		0.858	TBD	1.044	TBD	Continuing	Continuing	
MAGTF SEI&C (INIT)	C/FFP	Logicon,Stafford, VA	0.000	0.000		1.495	12/01	0.000		Continuing	Continuing	
MAGTF SEI&C (INIT)	CPFF	Raytheon, Fullerton, CA	0.000	0.000		0.655	12/01	0.000		Continuing	Continuing	
GBS	C/FFP	Logicon,Stafford, VA	0.000	0.495	11/00	0.492	02/02	0.000		0.000	0.987	1.022
GBS	C/CPF	Raytheon, Fullerton, CA	0.000	0.000		0.040	02/02	0.000		0.000	0.040	0.040
GBS	WR	III MEF	0.000	0.040	11/00	0.092	02/02	0.000		0.000	0.132	0.132
CCR	Various	Various	0.000	0.000		0.395	11/01	0.200	12/02	Continuing	Continuing	
CCR	MPR	GSA	0.000	0.000		0.802	03/02	0.802	03/02	Continuing	Continuing	
CCR	WR	NSWC Crane IN	0.000	0.000		0.200	06/02	0.200	06/02	Continuing	Continuing	
CCR	RCP	MCSC, Quantico, VA	0.000	0.000		0.037	03/02	0.037	03/02	Continuing	Continuing	
ONR TAXES				0.128								
Subtotal Support			6.407	4.081		8.779		4.248				
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis			DATE: **February 2002**									
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**		PROGRAM ELEMENT **0206313M Marine Corps Communication Sys**			PROJECT NUMBER AND NAME **C2277 Systems Engineering & Integration**							
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Eval											0.000	
Operational Test & Eval											0.000	
Tooling											0.000	
MAGTF SEI&C	CFFP	Logicon,Stafford, VA	5.602	3.725	10/00	0.000	10/01	2.780	10/02	1.966	14.073	14.073
MAGTF SEI&C	WR	MCTSSA, Cp Pndltn, CA	0.809	0.000		0.000		0.000		0.000	0.809	0.809
JINTACCS	C/CPFF	Logicon,Stafford, VA	3.167	0.895	10/00	1.530	10/01	1.544	10/02	Continuing	Continuing	
JINTACCS	WR	MCTSSA, Cp Pndltn, CA	0.158	0.106	10/00	0.150	10/01	0.200	10/02	Continuing	Continuing	
GBS	WR	MCTSSA, Cp Pndltn, CA	0.000	0.200	11/00	0.180	02/02	0.000		0.000	0.410	0.410
GBS	WR	MCOTEA, Quantico, VA	0.000	0.000		0.200	02/02	0.000		0.000	0.200	0.200
CCR	RCP	MCSC, Quantico, VA	1.082	0.004	02/01	0.264	TBD	0.299	TBD	Continuing	Continuing	
Subtotal T&E			10.818	4.930		2.324		4.823				
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis							DATE: **February 2002**						
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**			PROGRAM ELEMENT **0206313M Marine Corps Communication Sys**			PROJECT NUMBER AND NAME **C2277 Systems Engineering & Integration**							
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Contractor Engineering Suppt											0.000	
Govt Engineering Suppt											0.000	
Program Management Suppt											0.000	
Travel											0.000	
Labor (Research Personnel)											0.000	
Overhead											0.000	
MAGTF SEI&C	C/FFP	Logicon, Stafford, VA	0.150	0.160	11/00	0.170	11/01	0.180	10/02	Continuing	Continuing	
Subtotal Management			0.000	0.160		0.170		0.180		0.000	0.330	
Remarks:												
Total Cost				10.084		13.244		9.912		Continuing	Continuing	

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Sys**			PROJECT NUMBER AND NAME **C2278 Air Defense Weapons Systems**					
COST ($ in Millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**13.633**	**11.135**	**29.831**	**36.146**	**16.968**	**10.980**	**7.178**	**Cont**	**Cont**
RDT&E Articles Qty									

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) This project encompasses two sub-element programs which are part of the Integrated Air Defense System for the Marine Corps.

1. The Complementary Low Altitude Weapons System (CLAWS) is a mobile ground based air defense missile system designed to defeat threat cruise missiles unmanned aerial vehicles, and aircraft. CLAWS takes advantage of government furnished equipment (GFE) and non-developmental items (NDI) and technology by integrating current inventory DoD missiles with existing High Mobility Multi-purpose Wheeled Vehicles (HMMWV). CLAWS shall provide a rapidly deployable, mobile, high firepower, all-weather, standoff air defense system to defend Marine Expeditionary Forces and Naval Forces from attack by cruise missiles, aircraft and UAVs. It shall complement existing Short Range Air Defense (SHORAD) capabilities and shall interface with current and proposed Marine Air Command and Control System sensors and data paths.

2. The Cooperative Engagement Capability (CEC) enables all CEC-equipped, Anti-Air Warfare (AAW) weapons systems in a battle force to operate as a single, distributed AAW weapon system. This is accomplished providing timely sharing of fire control quality sensor data, correlated identification data, and AAW weapons management status. The sensor networking capability of CEC essentially allows forces to have a direct connection to the various sensors supported by forces throughout a battlefield enabling the development of a common understanding of the air situation. CEC consists of common processing units that interface with local and remote sensor data in order to develop a common track database and data communications pieces that enable the connectivity and networking of the sensors and processors.

3. The Multi-Role Radar System (MRRS) will provide lightweight, expeditionary, three-dimensional radar capable of detecting Cruise Missiles (CMs), fixed and rotary winged aircraft, Unmanned Aerial Vehicles (UAV's) and an enhanced Combat Identification (CID) capability. The system will augment the AN/TPS-59(V)3 sensor coverage and will be integrated into the Navy's Cooperative Engagement Capability (CEC) and the Marine Corps Composite Tracking Network (CTN). Additionally, the system shall provide Air Traffic Control (ATC) with a real time display of all air activity within the assigned area of responsibility and will support the situational awareness and cuing for Stinger, Avenger, and CLAWS.

4. The Continuous Wave Acquisition Radar (CWAR) will investigate, integrate, and test safety and diminishing source issues related to CWAR specifically with the intention of increasing the fleet's system maintainability and reliability. This effort includes all necessary prototyping, initial tooling and associated test equipment to prepare for production efforts. This line will also support all program requirements studies related to investigating future CWAR requirements.

5. The Low Attitude Air Defense (LAAD) Sustainment Program consists of various air defense platforms, simulators, and ground support equipment designed to provide air defense of vital areas in general or direct support of the Marine Air Ground Task Force (MAGTF), LAAD Sustainment comprises a number of configurations consisting of Marine Air Command and Control systems (MACCS) and Short Range Air Defense (SHORAD) assets integrated with a Remote Terminal Unit (RTU) and communications equipment.

6. The Short/Medium Range Air Defense Radar will develop engineering change proposals related to improved system performance with the specific purpose of meeting increased fleet opertional requirements. As part of this effort, AN/TPS-63 modifications and system improvements will be researched and analyzed which complement existing components to preclude an expensive USMC investment in solid-state radar technology.

7. Combat ID (CID) will provide rapid and accurate determination of friends, foes, or neutral identities of all potential targets within a combatant's area of responsibility in time to take decisive action. It wil enable fighting forces: to manage and control battlespace; optimally employ weapons and forces to increase the economy of force; lower combat attrition, and increase enemy losses while reducing fratricide.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-7 Operational Sys Dev	**0206313M Marine Corps Communications Sys**	**C2278 Air Defense Weapons Systems**

PROGRAM ACCOMPLISHMENTS AND PLANS

FY 2001 Accomplishments

- (U) $ 2.026 CEC: Developed software: Interface Design Document (IDD) development for CAC2S and CLAWS interface to CEC.
- (U) $ 1.450 CEC: Developed software: Concurrent development of alternate/advanced sensor networking technology interfaces (TCN).
- (U) $ 0.627 CEC: Test and Evaluation: Developmental testing support.
- (U) $ 0.251 CEC: Continued program management support.
- (U) $ 0.047 CID: Tested and evaluated systems identified by the request for proposal (RFP)
- (U) $ 0.868 CID: Continued Program Definition and Risk Reduction of RFP systems.
- (U) $ 0.500 CID: Continued studies to investigate feasibility of using various fielded systems to fulfill CID requirements (add'l) mission areas.
- (U) $ 1.013 CID: Continued program management support.
- (U) $ 5.500 CLAWS: Developed Initial design and integration of two CLAWS Proof of Concept Vehicles for User Evaluation and Development Testing.
- (U) $ 0.930 CLAWS: Program Management Support.
- (U) $ 0.270 CLAWS: Systems Engineering and Technical Support.
- (U) $ 0.151 External Hold

(U) Total $ 13.633

FY 2002 Planned Program

- (U) $ 0.121 CWAR: Initiate developmental test and evaluation.
- (U) $ 0.147 CWAR: Initiate development of Engineer Design Model.
- (U) $ 0.025 CWAR: Program management support.
- (U) $ 0.191 SHORT/MEDIUM RANGE AIR DEFENSE RADAR: Initiate developmental test and evaluation.
- (U) $ 0.100 SHORT/MEDIUM RANGE AIR DEFENSE RADAR: Initiate development of Engineer Design Model.
- (U) $ 0.110 SHORT/MEDIUM RANGE AIR DEFENSE RADAR: Program management support.
- (U) $ 1.100 CEC: Continue Software development: IDD development for CAC2S and CLAWS interface to CEC.
- (U) $ 0.622 CEC: Continue development of Engineer Design Model.
- (U) $ 0.648 CEC: Continue Testing and Evaluation: Developmental testing support.
- (U) $ 0.300 CEC: Continue program management support.
- (U) $ 5.771 CLAWS: Finalize the development, design and integration issues related to the two Proof of Concept Vehicles. Continue to conduct Developmental Testing. Conduct CAIV trade-offs and design/build Pre-Production Model.
- (U) $ 2.000 CLAWS: Continue program management support.

(U) Total $ 11.135

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-7 Operational Sys Dev	**0206313M Marine Corps Communications Sys**	**C2278 Air Defense Weapons Systems**

(U) FY 2003 Planned Program:

- (U) $ 0.232 CWAR: Continue developmental test and evaluation.
- (U) $ 0.100 CWAR: Continue Engineer Design Model.
- (U) $ 0.025 CWAR: Continue program management support.
- (U) $ 0.230 SHORT/MEDIUM RANGE AIR DEFENSE RADAR: Continue developmental test and evaluation/risk reduction.
- (U) $ 0.150 SHORT/MEDIUM RANGE AIR DEFENSE RADAR: Continue Engineer Design Model.
- (U) $ 0.110 SHORT/MEDIUM RANGE AIR DEFENSE RADAR: Continue program management support.
- (U) $ 1.837 CEC: Continue software development: Finalization of Interface Design Document for CAC2S and CLAWS interfaces to CEC.
- (U) $ 0.919 CEC: Testing and Evaluation: Certification of CAC2S and CLAWS interfaces to CEC.
- (U) $ 8.720 CEC: Continue Engineer Development Model development: Purchase of items to finalize Engineer Design Model.
- (U) $ 0.527 CEC: Continue program management support.
- (U) $ 0.652 CID: Continue program management support.
- (U) $ 0.435 CID: Continue requirements development.
- (U) $ 0.413 CID: Engineering analysis of CID systems.
- (U) $ 7.178 CLAWS: Complete build of Pre-Production Model and upgrade both Proof of Concept Vehicles to Pre-production Baselines. Conduct final Developmental Testing.
- (U) $ 1.940 CLAWS: Continue program management support.
- (U) $ 2.203 CLAWS: Developmental testing for live firings.
- (U) $ 0.917 MRRS: Refinement of the ORD, Campaign Level Effectiveness Analysis, Analysis of Alternatives and Life Cycle Cost Estimate.
- (U) $ 0.383 MRRS: Affordable Ground Base Radar
- (U) $ 2.700 MRRS: Program management support.
- (U) $ 0.160 LAAD SUSTAINMENT: Expeditionary Air Defense System (EADS) software and Stinger ground support development.

(U) Total $ 29.831

(U) PROJECT CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	20.081	11.240	
(U) Adjustments from the President's Budget:			
(U) SBIR/STTR Transfer	-0.335		
(U) Execution Adjustment			
(U) Minor Affordability Adjustment		-0.105	
(U) Program Adjustment	-6.113		
(U) FY 2003 President's Budget	13.633	11.135	29.831

CHANGE SUMMARY EXPLANATION:
(U) Funding: See Above.
(U) Schedule: Not Applicable
(U) Technical: Not Applicable.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Sys**	PROJECT NUMBER AND NAME **C2278 Air Defense Weapons Systems**	

(U) B. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) PMC LINE BLI 300600 LAAD SUS	0.000	0.000	0.184	2.119	2.653	4.658	4.005	Continuing	Continuing
(U) PMC LINE BLI 462000 CWAR (EADS)	1.500	0.425	1.178	0.490	0.500	0.000	0.000	0	4.093
(U) PMC LINE BLI 464000 CEC	0.000	0.000	0.000	0.000	12.055	23.422	4.932	0	40.409
(U) PMC LINE BLI 464000 CLAWS	0.000	0.000	0.000	6.506	35.293	19.271	30.267	0	91.337
(U) PMC LINE BLI 305000 CLAWS MISSILES	0.000	0.000	0.000	24.456	24.419	24.361	83.501	0	156.737
(U) PMC LINE BLI 464000 SH/MED RANGE AIR	0.000	0.000	0.986	1.121	0.970	0.223	0.232	Continuing	Continuing
(U) PMC LINE BLI 464000 MRRS	0.000	0.000	0.000	0.000	0.000	0.000	44.389	Continuing	Continuing

(U) Related RDT&E:
PE 0603216C (Ballistic Missile Defense Organization, Theater Missile Defense)

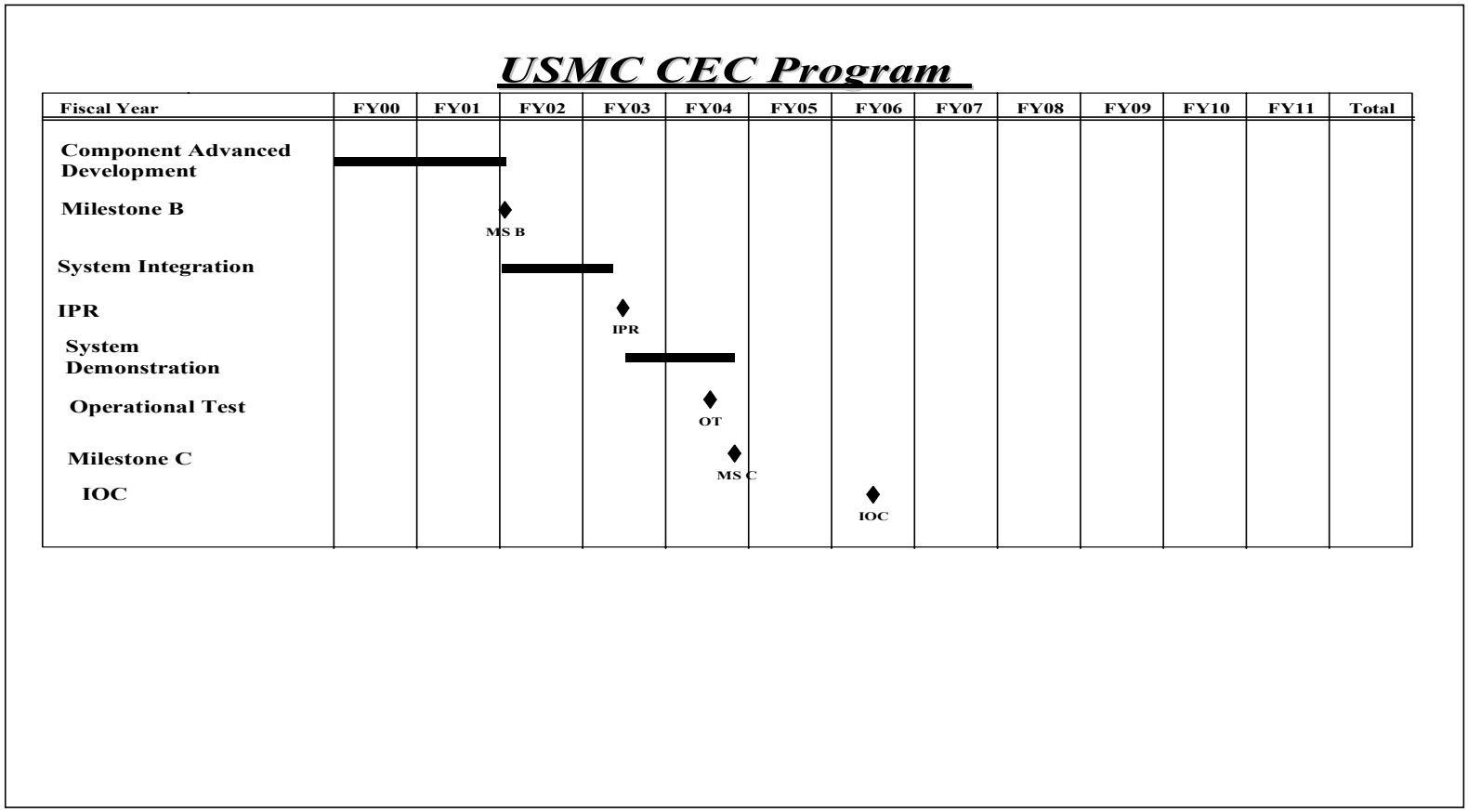
(U) D. ACQUISITION STRATEGY:

(U) CLAWS: Competitively awarded fixed price contract for design and development. Additionally, there are firm fixed price production options through FY07.
(U) CEC: The USMC's CEC acquisition strategy is to participate in the USN's Program procurement and testing, making necessary modifications to support the Marine Corps' requirement. The USMC CEC project will be utilizing existing and future USN CEC contracts.
(U) LAAD SUSTAINMENT: The LAAD Sustainment acquisition strategy will utilize the CLAWS contract for efforts dealing with the expeditionary air defense system. Efforts include software fixes, upgrades, and engineering services.
(U) CID: This effort will continue the management of the CID program as it transitions to MCTIS (Mounted Cooperative Target Identification System) in FY04. It will allow additional engineering analysis of the Army's miniaturized BCIS and competing foreign systems as possible solutions for MCTIS.
(U) MRRS: The MRRS will build off of the Navy ONR Affordable Ground Based Radar Science and Technology program that will demonstrate advanced mobility combined with medium range and high resolution.
(U) CWAR: This effort requires R&D funds to develop, procure, install and maintain modifications to keep the Marine Air Command and Control System radar's electronics, hardware, and software viable and safe; provide upkeep of the system. Efforts are underway with APM AD weapons to award an Engineering Services and procurement contract with Raytheon Corporation. The main focus for the contract will be for the procurement of the AN/MPQ-62 Continuous Wave Acquisition Radar (CWAR) Built in Test Equipment (BITE) Diagnostics upgrade which replaces five major sub-assemblies resulting in a substantial reduction in obsolete components, an increase in system reliability and maintainability, as well as addressing any significant safety issues.
(U) SHORT/MEDIUM RANGE AIR DEFENSE RADAR: This effort requires R&D funds to develop, procure, install, and maintain modifications to keep the Short/Medium Range Air Defense radar system's electronics and hardware viable, safe, and provide sustainment of the fielded system. Efforts are underway to award a sole source Engineering Services & procurement contract with the AN/TPS-63's Original Equipment Manufacturer, Northrop Grumman. The main focus for the contract will be for the development and procurement of replacement sub-assemblies currently identified as containing obsolete components, as well as those assemblies experiencing reliability, maintainability and safety related issues.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-7 Operational Sys Dev	**0206313M Marine Corps Communications Sys**	**C2278 Air Defense Weapons Systems**

(U) D. SCHEDULE PROFILE:

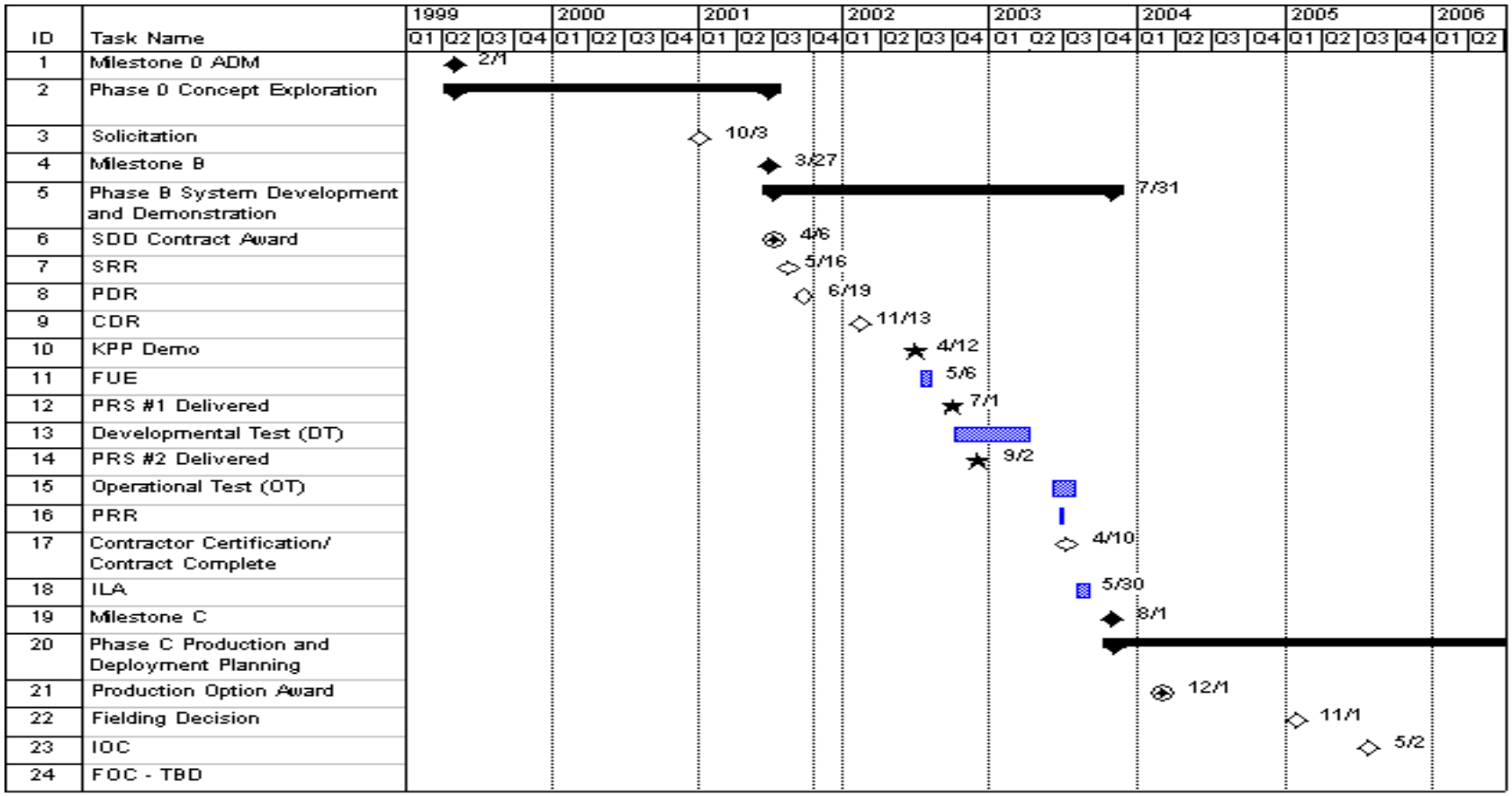


Program Funding Summary (APPN, BLI #, NOMEN)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) RDT&E,N	4.354	2.670	12.003	13.506	3.225	2.500	1.500	0.000	39.758
(U) PMC, BLI# 464000 CEC	0.000	0.000	0.000	0.000	12.055	23.422	4.932	0.000	40.409

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communications Sys**	PROJECT NUMBER AND NAME **C2278 Air Defense Weapons Systems**

CLAWS



Program Funding Summary	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(APPN, BLI #, NOMEN)									
(U) RDT&E,N	6.700	7.771	11.321	14.556	4.130	0.902	0.924	0.000	46.304
(U) PMC BLI# 464000 CLAWS	0.000	0.000	0.000	6.506	35.293	19.271	30.267	0.000	91.337
(U) PMC BLI# 305000 CLAWS MISSILES	0.000	0.000	0.000	24.456	24.419	24.361	83.501	0.000	156.737

CLASSIFICATION:

Exhibit R-3 Cost Analysis			DATE: **February 2002**									
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**		PROGRAM ELEMENT **0206313M Marine Corps Communication Sys**					PROJECT NUMBER AND NAME **C2278 Air Defense Weapons Systems**					
Cost Categories (Tailor to WBS, or Sys/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	FY 03 Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Dev											0.000	
Ancillary Hardware Dev											0.000	
Systems Engineering											0.000	
CWAR	MIPR	MCLB Barstow, CA	0.015	0.000		0.000		0.000		0.000	0.015	0.015
CWAR	MIPR	NSWC, Crane, IN	0.000	0.000		0.268	01/02	0.322	01/03	Continuing	Continuing	
CWAR	MIPR	MILCOM, RA, AL	2.390	0.000		0.000		0.000		0.000	2.390	2.390
CWAR	WR	MCTSSA, Cp Pnd,CA	0.029	0.000		0.000		0.000		0.000	0.029	0.029
S/M Range Air Defense Rdr	MIPR	NSWC, Crane, IN	0.000	0.000		0.291	01/02	0.350	01/03	Continuing	Continuing	
CID	WR	USACOM, Norfolk, VA	0.750	0.000		0.000		0.000		0.000	0.750	0.750
CID	RCP	MCSC, Quantico, VA	0.400	0.250	09/01	0.000		0.000		0.000	0.650	0.650
CID	RCP	NAWC, China Lake	0.000	0.718	01/01	0.000		0.000		0.000	0.718	0.718
CID	RCP	MICOM, Huntsville, AL	0.000	0.150	02/01	0.000		0.000		0.000	0.150	0.150
CID	RCP	CECOM, Ft Monmouth	0.000	0.250	09/01	0.000		0.000		0.000	0.250	0.250
CEC	RCP	JHU/APL	1.221	0.088	06/01	0.000		0.000		Continuing	Continuing	
CEC	RCP	Sensis, Syracuse, NY	1.104	0.762	06/01	0.300	01/02	0.000		Continuing	Continuing	
CEC	WR	NSWC, Crane, IN	1.066	0.870	11/00	0.665	01/02	9.722	TBD	Continuing	Continuing	
CEC	RCP	Raytheon, St Ptrsbrg, FL	0.244	0.163	06/01	0.135	07/02	0.500	01/03	Continuing	Continuing	
CEC	WR	Solipsys, Laurel, MD	0.749	0.426	11/00	0.300	01/02	1.000	TBD	Continuing	Continuing	
CLAWS	WR	NSWC,	0.000	0.158	03/01	0.000		0.000			0.158	0.158
CLAWS	WR	MCSC,	0.000	0.043	06/01	0.000		0.000			0.043	0.043
CLAWS	WR	MCTSSA,	0.000	0.007	07/01	0.000		0.000			0.007	0.007
CLAWS	RCP	MCSC,	0.000	0.011	02/01	0.000		0.000			0.011	0.011
CLAWS	RCP	USArmy	0.000	0.148	09/01	0.000		0.000			0.148	0.134
CLAWS	RCP	MICOM,	0.000	0.120	09/01	0.000		0.000			0.120	0.120
CLAWS	RFP	Raytheon, Bedford, MA	0.000	5.500	04/01	5.771	TBD	7.178	01/03	Continuing	Continuing	
CLAWS	RCP	SSDC, Huntsville, AL	0.000	0.250	08/01	0.000		0.000				0.250
MRRS	RCP	TRW	0.000	0.000		0.000		0.267	01/03	Continuing	Continuing	
MRRS	RCP	TRW	0.000	0.000		0.000		0.200	01/03	Continuing	Continuing	
MRRS	RCP	PA&E	0.000	0.000		0.000		0.350	01/03		0.350	0.350
MRRS	WR	MCCDC	0.000	0.000		0.000		0.100	01/03		0.100	0.100
MRRS	WR	NSWC, Dahlgren, VA	0.000	0.000		0.000		0.383	01/03	Continuing	Continuing	
MRRS	RCP	TBD	0.000	0.000		0.000		1.950	01/03	Continuing	Continuing	
LAAD SUSTAINMENT	RCP	Raytheon, Bedford, MA	0.000	0.000		0.000		0.060	01/03	Continuing	Continuing	
LAAD SUSTAINMENT	TBD	TBD	0.000	0.000		0.000		0.100	01/03	Continuing	Continuing	
Subtotal Product Dev			7.968	9.914		7.730		22.482		Continuing	Continuing	

Remarks:

R-1 SHOPPING LIST - Item No. 194

CLASSIFICATION:

Exhibit R-3 Cost Analysis			DATE: **February 2002**									
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**		PROGRAM ELEMENT **0206313M Marine Corps Communication Sys**					PROJECT NUMBER AND NAME **C2278 Air Defense Weapons Systems**					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY03 Cost	FY 03 Award Date	FY 03 Cost to Complete	Total Cost	Target Value of Contract
Development Support Equip											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
SH/Med Rng Air Def Radar	RCP	MCSC, Quantico, VA	0.000	0.000		0.110	01/02	0.140	01/03	Continuing	Continuing	
CWAR	RCP	MCSC, Quantico, VA	0.000	0.000		0.025	01/02	0.035	01/03	Continuing	Continuing	
CID	RCP	MCSC, Quantico, VA	0.450	0.000		0.000		0.202	01/03	0.000	0.652	0.652
CID	WR	MCSC, Quantico, VA	0.050	0.103	01/01	0.000		0.000		0.000	0.103	0.153
CID	WR	NSWC, Crane, IN	0.000	0.150	11/00	0.000		0.413	11/02	0.000	0.563	0.563
CID	RCP	GSA, Bremerton, WA	0.000	0.760	01/01	0.000		0.435	10/02	0.000	1.195	1.195
CEC	WR	Jaycor, FtWorth, TX	0.043	0.000		0.000		0.000		0.000	0.043	0.043
CEC	WR	MCLB Albany, GA	0.015	0.005	10/00	0.005	01/02	0.010	12/02	Continuing	Continuing	
CEC	MIPR	STA, FtWorth, TX	0.157	0.275	01/01	0.325	02/02	0.177	03/03	Continuing	Continuing	
CEC	WR	1st MAW	0.000	0.000		0.000		0.010	01/03		0.010	0.010
CEC	RCP	Lockheed Martin	0.000	0.430	02/01	0.000		0.000		0.000	0.430	0.430
CLAWS	RFP	MCSC, Quantico, VA		0.000	06/01	2.000	01/02	2.843	01/03	Continuing	Continuing	
Subtotal Support			0.715	1.723		2.465		4.265		Continuing	Continuing	
Remarks:												

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	FY 03 Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Eval											0.000	
Operational Test & Eval											0.000	
Tooling											0.000	
CID	WR	NSWC China Lake, CA	0.400	0.047	11/00	0.000		0.000		0.000	0.447	0.447
CEC	WR	Port Hueneme, CA	0.000	0.018	04/01	0.018	05/02	0.018	05/03	Continuing	Continuing	
CEC	WR	MCTSSA, Cp Pndltn,CA	0.010	0.005	01/01	0.005	01/02	0.035	01/03	Continuing	Continuing	
CEC	WR	MACS24 Damneck,VA	0.010	0.015	01/01	0.015	01/02	0.015	01/03	Continuing	Continuing	
CEC	WR	MAWS/Other	0.000	0.112	06/01	0.000		0.000		Continuing	Continuing	
CEC	MIPR	DCMS, Syracuse, NY	0.020	0.002	03/01	0.002	03/02	0.002	03/03	Continuing	Continuing	
CEC	WR	NSWC, Dahlgren, VA	0.000	0.540	12/00	0.300	12/01	0.227	12/02	Continuing	Continuing	
CEC	WR	NavAir, Pax River, MD	0.000	0.086	02/01	0.000		0.000		0.000	0.086	0.086
CLAWS	WR	White Sands, Tuscon, AZ	0.000	0.000		0.000		0.800	01/03	0.000	0.800	0.800
Subtotal T&E			0.440	0.825		0.340		1.097		Continuing	Continuing	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis			DATE: **February 2002**									
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**		PROGRAM ELEMENT **0206313M Marine Corps Communication Sys**					PROJECT NUMBER AND NAME **C2278 Air Defense Weapons Systems**					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	FY 03 Cost to Complete	Total Cost	Target Value of Contract
Contractor Engineering Suppt											0.000	
Govt Engineering Suppt											0.000	
Program Management Suppt											0.000	
Travel											0.000	
Labor (Research Personnel)											0.000	
Overhead											0.000	
CEC	RCP	Logicon, Stafford, VA	0.176	0.416	10/00	0.450	01/02	0.287	01/03	Continuing	Continuing	
CEC	RCP	MCSC	0.000	0.034	01/01	0.040	01/02	0.000		Continuing	Continuing	
CEC	RCP	EG&G PAHL	0.000	0.050	11/00	0.050	01/02	0.000		Continuing	Continuing	
CEC	RCP	MCSC	0.000	0.057	01/01	0.060	01/02	0.000		Continuing	Continuing	
CID	RCP	Logicon, Stafford, VA	0.000	0.000		0.000		0.450	01/03	0.000	0.000	
MRRS	WR	MCSC	0.000	0.000		0.000		0.100	01/03	Continuing	Continuing	
MRRS	RCP	Logicon, Stafford, VA	0.000	0.000		0.000		0.650	01/03	Continuing	Continuing	
CLAWS	RCP	Logicon, Stafford, VA	0.000	0.463	11/00	0.000		0.500	01/03	Continuing	Continuing	
		External Hold		0.151								
Subtotal Management			0.176	1.171		0.600		1.987		Continuing	Continuing	
Remarks:												
Total Cost			9.299	13.633		11.135		29.831		Continuing	Continuing	

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2002**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Development**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communication Systems**				PROJECT NUMBER AND NAME **C2315 Training Devices/Simulators**				
COST ($ in Millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**10.496**	**13.548**	**6.145**	**4.464**	**3.208**	**1.642**	**1.652**	**Cont**	**Cont**
RDT&E Articles Qty									

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) Training simulators supported by this program element include Joint Simulation System (JSIMS), Closed Loop Artillery Simulation System (CLASS), and Combined Arms Command & Control Training Upgrade System (CACCTUS). These training systems provide tactical weapons and decision-making skill training from entry level through Marine Air-Ground Task Force (MAGTF) staff level. CLASS integrates Marine Corps training requirements into the Joint Towed Artillery Digitalization System (TADS). Together these systems will be interoperable and will allow for mission planning, mission rehearsal and concept evaluation in a valid synthetic environment with objective, timely feedback. Through live, virtual and constructive simulation, the Marine Corps will have the means to train jointly, educate, develop doctrine and tactics, formulate and assess operational plans, assess warfighting situations and define operational requirements.

PROGRAM ACCOMPLISHMENTS AND PLANS

FY 2001 Accomplishments

- (U) $ 3.526 JSIMS: Continued to provide technical expertise to the US Army, US Navy and US Air Force in the development of USMC specific requirements. Continued to participate in Federation Integration Events 1-3 and Functional Assessment 1.
- (U) $ 0.420 JSIMS: Began VRM 2.0 software development.
- (U) $ 0.491 JSIMS: Continued support in the development of USMC notional hardware configurations and participated in the Enterprise development of USMC C4I interface requirements. Continued technical expertise to test planning group for build 1 demonstration.
- (U) $ 3.082 CACCTUS: Plan, develop, integrate and test software interface with simulation and Combined Arms Staff Trainer (CAST) .
- (U) $ 2.501 CACCTUS: Training analysis and application; documentation of results.
- (U) $ 0.476 CACCTUS: Procure NDI hardware for prototype development and integration. Studying and validating notional configurations and enhancements.

(U) Total $ 10.496

FY 2002 Planned Program

- (U) $ 4.857 JSIMS: Continue to provide technical expertise to the US Army, US Navy and US Air Force in the development of USMC specific requirements. Participate in Federate Integration Event 4 and 5 and Functional Assessment 2.
- (U) $ 0.612 JSIMS: Complete Version Release Milestone (VRM) 1.0 and begin participation in MOT&E.
- (U) $ 0.716 JSIMS: Continue Verification, Validation, and Accreditation of the development of VRM 2.0 software.
- (U) $ 1.836 CLASS: Initial planning and software development for CLASS deployable versions (3).
- (U) $ 0.427 CLASS: Begin test and evaluation prototypes for functionality.
- (U) $ 5.100 CACCTUS: Continue all RDTE efforts begun in FY01 as indicated in Planned Program above.

(U) Total $ 13.548

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-7 Operational Sys Development	**0206313M Marine Corps Communication Systems**	**C2315 Training Devices/Simulators**

(U) FY 2003 Planned Program:

- (U) $ 4.439 JSIMS: Continue to provide technical expertise to the US Army, US Navy and US Air Force in the development of USMC specific requirements.
- (U) $ 0.521 JSIMS: Complete Verification, Validation, and Accreditation of the development of VRM 2.0 software.
- (U) $ 0.612 JSIMS: Continue to participate in MOT&E and the Initial Operational Capability (IOC) event. Begin VRM 3.0 software development.
- (U) $ 0.573 CLASS: Continuation of system design and software development for CLASS subsystems.

(U) Total $ 6.145

(U) PROJECT CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	10.714	8.599	
(U) Adjustments from the President's Budget:			
(U) SBIR/STTR Transfer	-0.275		
(U) Execution Adjustment			
(U) Minor Affordability Adjustment		-0.151	
(U) Program Adjustment	0.057	5.100	
(U) FY 2003 President's Budget:	10.496	13.548	6.145

CHANGE SUMMARY EXPLANATION:
(U) Funding: See Above.
(U) Schedule: Not Applicable.
(U) Technical: Not Applicable.

(U) B. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) PMC, BLI# 653200 Trng Dev/Sims	23.030	30.176	18.651	21.457	21.906	17.102	10.987	Continuing	Continuing

(U) Related RDT&E: Not Applicable

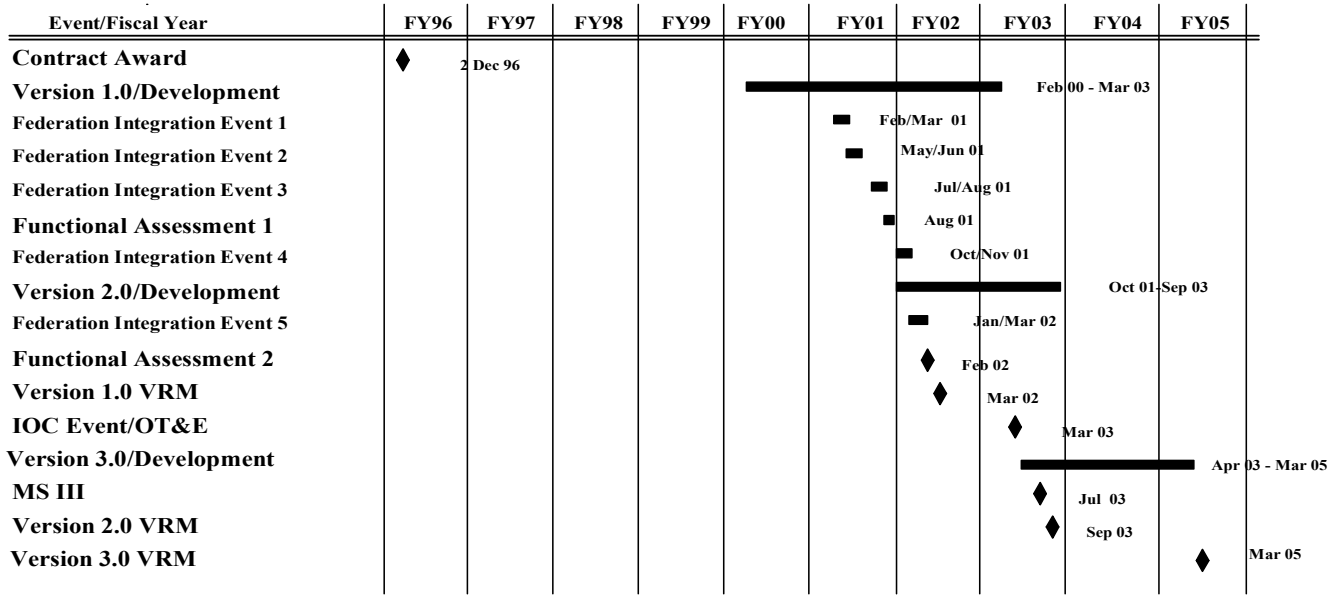
(U) C. ACQUISITION STRATEGY:

(U) JSIMS - Competitively awarded Level of Effort (LOE) contract followed by Cost Plus Fixed Fee (CPFF) contract.
(U) CLASS - Currently in the Concept Exploration Phase. A competitively awarded Cost Plus Fixed Fee (CPFF) contract will be utilized to do engineering, manufacturing and development.
(U) CACCTUS - Competitive cost plus fixed fee contract (CPFF).

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Development**	PROGRAM ELEMENT NUMBER AND NAME **0206313M Marine Corps Communication Systems**	PROJECT NUMBER AND NAME **C2315 Training Devices/Simulators**

JSIMS PROGRAM SCHEDULE



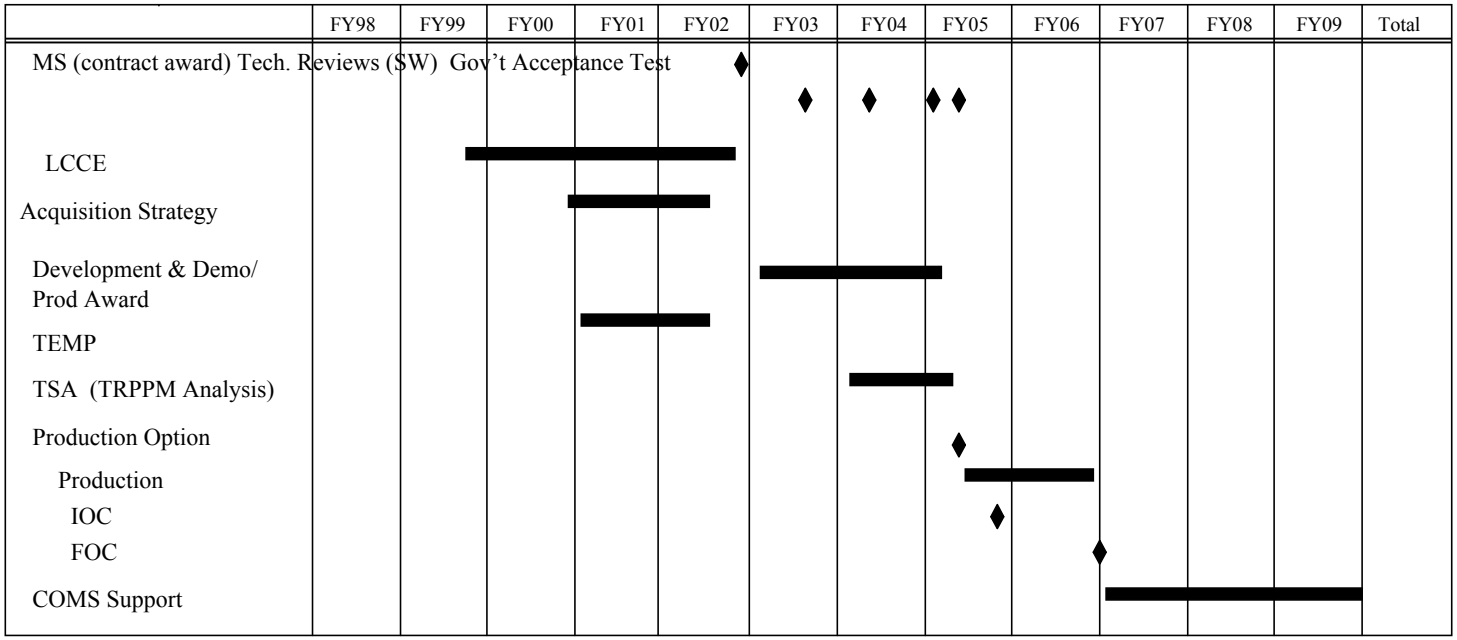
Other Program Funding Summary

(APPN, BLI #, NOMEN)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) RDT&E,N	4.437	6.185	5.572	4.464	3.208	1.642	1.652	Continuing	Continuing
(U) PMC, BLI# 653200 Trng Dev/Sims	0.000	0.000	1.506	1.552	1.497	1.497	1.492	Continuing	Continuing

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-7 Operational Sys Development	**0206313M Marine Corps Communication Systems**	**C2315 Training Devices/Simulators**

CLASS PROGRAM SCHEDULE



Other Program Funding Summary	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(APPN, BLI #, NOMEN)									
(U) RDT&E,N	0.000	2.263	0.573	0.000	0.000	0.000	0.000	0.000	2.836
(U) PMC, BLI# 653200 Trng Dev/Sims	0.000	0.000	0.000	5.361	6.813	8.215	0.000	0.000	20.389

CLASSIFICATION:

Exhibit R-3 Cost Analysis			DATE: **February 2002**									
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Development**		PROGRAM ELEMENT **0206313M Marine Corps Communication Systems**			PROJECT NUMBER AND NAME **C2315 Training Devices/Simulators**							
Cost Categories (Tailor to WBS, or Sys/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Dev											0.000	
Ancillary Hardware Dev											0.000	
Systems Engineering											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Software Development	RCP	SPAWAR, SD, CA	10.465	2.200	2Q/01	0.830	1Q/02	0.830	1Q/03	Continuing	Continuing	
Software Development	MIPR	STRICOM, ORL, FL		0.850	3Q/01	1.000	2Q/02				1.850	
Software Development	WR	SPAWAR, SD, CA	2.211	0.710	1Q/01	0.250	1Q/02	0.250	1Q/03	Continuing	Continuing	
Software Development	RCP	MCSC, QUANTICO, VA				1.849	1Q/02	2.000	1Q/03	Continuing	Continuing	
Software Development	TBD	MCSC, QUANTICO, VA				2.113	2Q/02	0.573	1Q/03	Continuing	Continuing	
											0.000	
											0.000	
Subtotal Product Dev			12.676	3.760		6.042		3.653		Continuing	Continuing	
Remarks:												

Cost Categories (Tailor to WBS, or Sys/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Development Support Equip											0.000	
Software Development	RCP	MTS		5.000	4Q/01	3.950	3Q/02				8.950	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
Subtotal Support				5.000		3.950					8.950	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis					DATE: **February 2002**							
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Development**		PROGRAM ELEMENT **0206313M Marine Corps Communication Systems**			PROJECT NUMBER AND NAME **C2315 Training Devices/Simulators**							
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Eval	MIPR	CECOM, FT M ,NJ	2.729	0.365	1Q/01	0.200	1Q/02	0.200	1Q/03	Continuing	Continuing	
Operational Test & Eval											0.000	
Tooling											0.000	
											0.000	
Subtotal T&E			2.729	0.365		0.200		0.200		Continuing	Continuing	
Remarks:												
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Contractor Engineering Suppt	WR	NAWC, ORLANDO, FL				0.450	3Q/02				0.450	
Govt Engineering Suppt	WR	NAWC, ORLANDO, FL		1.059	4Q/01	0.150	3Q/02				1.209	
Program Management Suppt	WR	NAWC, ORLANDO, FL		0.297	2Q/01	0.195	1Q/02	0.195	1Q/02	Continuing	Continuing	
Program Management Suppt	WR	USMC		0.015	4Q/01	1.961	1Q/02	2.097	1Q/03	Continuing	Continuing	
Travel											0.000	
Labor (Research Personnel)	WR	NAWC, ORLANDO, FL				0.600					0.600	
Overhead											0.000	
Subtotal Management				1.371		3.356		2.292		Continuing	Continuing	
Remarks:												
Total Cost				10.496		13.548		6.145		Continuing	Continuing	

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2002			
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME			PROJECT NUMBER AND NAME					
RDT&E, N /BA-7 Operational Sys Dev	**0206313M Marine Corps Communications Sys**			**C2510 MAGTF CSSE S&E**					
COST ($ in Millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**1.071**	**4.558**	**4.867**	**0.576**	**0.581**	**0.591**	**0.602**	**Cont**	**Cont**
RDT&E Articles Qty									

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) The MAGTF Combat Service Support Element & Supporting Establishment (CSSE & SE) consists of mutually supporting Logistics Information Technology (IT) programs that support force deployment, planning, and execution; sustainment and distribution; and contribute to the CINC's Common Operating Picture (COP) to support rapid accurate decision making.

1. The ATLASS PIP program funds the improvement of the existing ATLASS II+ software as well as the migration of base and station (non-deployable) USMC intermediate and consumer level supply and maintenance systems from a mainframe environment into a personal computer application using a network client-server architecture. The ATLASS PIP consolidates the total force intermediate and consumer level supply and maintenance information management functions into a single material management system. ATLASS PIP enhances ATLASS II+, retires existing mainframe legacy applications in use by the bases and stations, and improves logistic support to the operating forces. ATLASS PIP retains the flexibility to exploit existing commercial and government off-the-shelf software. This system remains compliant with the MAGTF C4I concept, GCCS COE, and published DOD standards for open systems architecture.

2. TC-AIMS II is a Joint transportation and deployment Automated Information System (AIS) supporting the DOD mission areas of mobility and sustainment. It will replace two of our MAGTF LOG AIS applications over a parallel transition starting in FY00. TC-AIMS II will be used by Command Elements, Traffic Management Offices (TMO), and all operating forces deploying units to automate the processes of planning, organizing, coordinating, and controlling deployment, redeployment, and sustainment activities worldwide, in peace as well as during contingencies. It provides modernized, scaleable, integrated, and easily deployable AIS that support reengineered deployment and business processes throughout DOD. TC-AIMS II is the key enabler towards Force Deployment Planning and Execution. It is the source system for In-Transit-Visibility (ITV) data, which provides CINCs and Components with critical visibility of items in the transportation pipeline. TC-AIMS II links all DOD Component unit movement and Installation Transportation Office/Traffic Management Office (ITO/TMO) functionality into a single transportation management system. It is a Joint ACAT 1A(M) program, with the USMC portion being handled as an ACAT III.

3. MAGTF CSSE & SE: The CSSE Shared Data Environment is a cornerstone concept of the Integrated Logistics Capability. It will incorporate data warehousing technologies and products to provide one-stop shopping for data supporting CSSE/SE decision-making processes. It will stage CSSE/SE data and integrate decision support tools (DST) to enable command and control (C2), situational awareness, and total asset visibility at all levels of command, from the CINC to the Company Commander. The establishment of the CSSE SDE will eliminate the need for individual applications to perform these tasks for themselves and will contribute to a more cost-effective, efficient application development environment.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2002
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N /BA-7 Operational Sys Dev	**0206313M Marine Corps Communications Sys**	**C2510 MAGTF CSSE S&E**	

PROGRAM ACCOMPLISHMENTS AND PLANS

FY 2001 Accomplishments

- (U) $ 0.477 ATLASS PIP: Began the development of implementation and support plans.
- (U) $ 0.140 TC-AIMS II: Conducted a Sustainment Calculation Module.
- (U) $ 0.054 TC-AIMS II: Funded Logistics Working Group.
- (U) $ 0.400 SCN REPROGRAMMING: Funded SCN proprity workload.

(U) Total $ 1.071

FY 2002 Planned Program

- (U) $ 2.186 ATLASS PIP: Begin design and develop ATLASS PIP strategies and continue development of implementation and support plans.
- (U) $ 0.725 ATLASS PIP: Evaluate and begin web-enabling technology for ATLASS PIP.
- (U) $ 0.725 ATLASS PIP: Begin incremental software development.
- (U) $ 0.286 TC-AIMS II: Conduct Operational Test and Evaluation in conjunction with the Milestone C decision.
- (U) $ 0.636 MAGTF CSSE & SE: Begin design & development of web-enabling technologies, messaging backbone, and integration with air/ship/rail load and joint planning & execution tools. Begin efforts to migrate legacy system data and interfaces to the Shared Data Enviornment.

(U) Total $ 4.558

(U) FY 2003 Planned Program:

- (U) $ 2.227 ATLASS PIP: Complete design; web enabling, and development of ATLASS PIP.
- (U) $ 1.800 ATLASS PIP: Continue incremental software development and conduct software testing.
- (U) $ 0.539 MAGTF CSSE & SE: Continue design & development of web-enabling technologies, messaging backbone, and integration with air/ship/rail load and joint planning & execution tools. Begin efforts to migrate legacy system data and interfaces to the Shared Data Environment.
- (U) $ 0.301 TC-AIMS II: Conduct service specific software enhancement to TC-AIMS II to provide interface capability with USMC systems.

(U) Total $ 4.867

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-7 Operational Sys Dev	**0206313M Marine Corps Communications Sys**	**C2510 MAGTF CSSE S&E**

(U) PROJECT CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	1.064	4.602	
(U) Adjustments from the President's Budget:			
(U) SBIR/STTR Transfer	-0.007		
(U) Execution Adjustment	-0.071		
(U) Minor Affordability Adjustment		-0.044	
(U) Program Adjustment	0.085		
(U) FY 2003 President's Budget:	1.071	4.558	4.867

CHANGE SUMMARY EXPLANATION:
(U) Funding: See Above.
(U) Schedule: Not Applicable.
(U) Technical: Not Applicable.

(U) B. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
PMC BLI 464100 ATLASS PIP	0.000	0.000	5.210	5.560	5.102	4.477	0.000	Continuing	Continuing
PMC BLI 464100 TC-AIMS II	2.820	2.693	5.343	0.000	0.000	0.000	0.000	0.000	10.856

(U) Related RDT&E: Not Applicable.

(U) C. ACQUISITION STRATEGY:

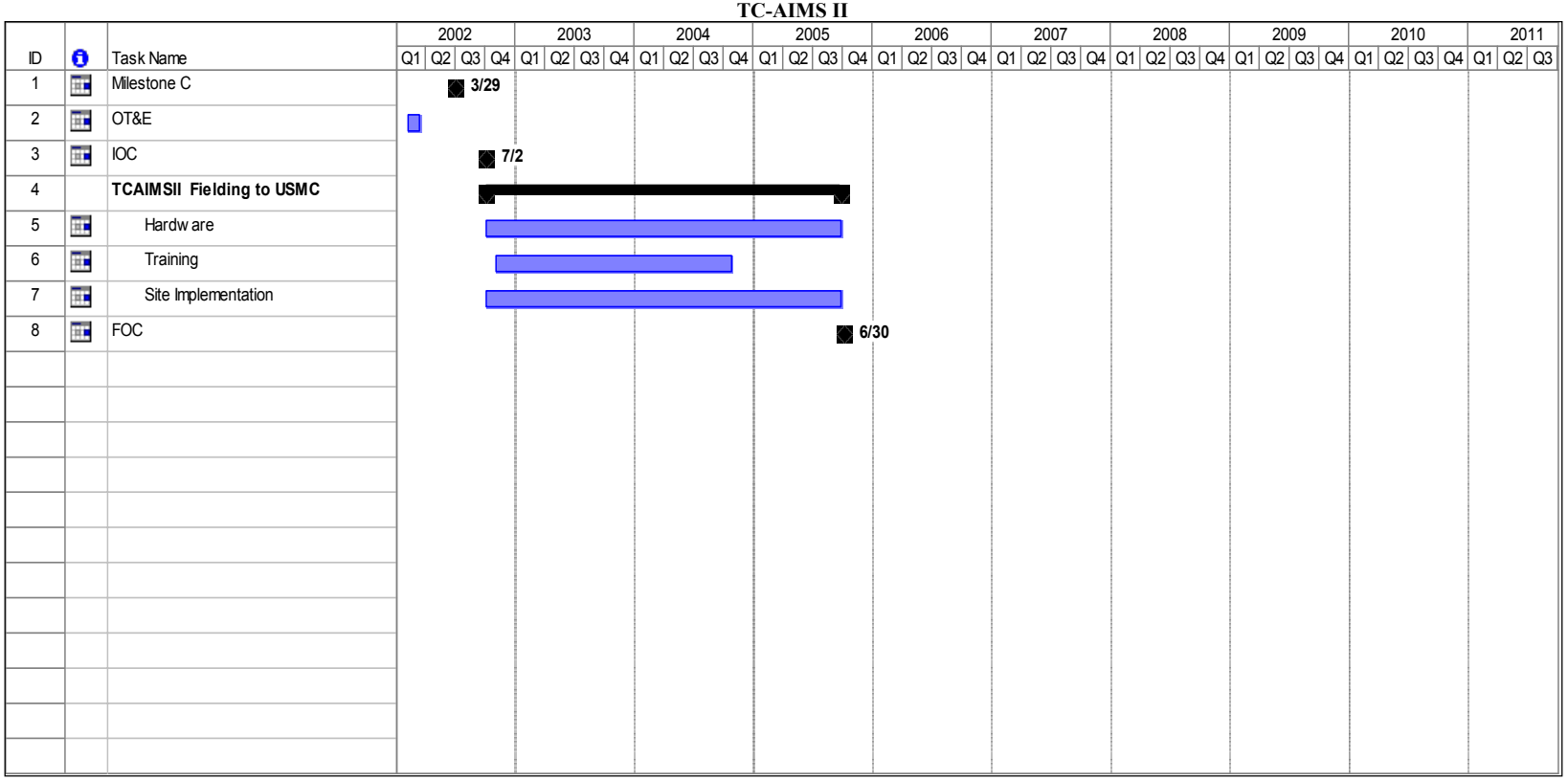
ATLASS PIP: The current acquisition strategy is to stay with SSC Chesapeake, the developer for ATLASS II+ for our development work.

TC-AIMS II: This is a joint program with the Army (PEO STAMIS). The purchase of computers will be made by PMIT and the perpherals will be made off a standard government list. The integration of the system will be performed by Global Systems, Inc under a SPAWAR contract.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-7 Operational Sys Dev	**0206313M Marine Corps Communications Sys**	**C2510 MAGTF CSSE S&E**

TC-AIMS II



Program Funding Summary	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(APPN, BLI #, NOMEN)									
(U) RDT&E,N	0.194	0.286	0.301	0.310	0.313	0.316	0.319	Cont	Cont
(U) PMC BLI# 464100 TC-AIMS II	2.820	2.693	5.343					0.000	10.856

CLASSIFICATION:

Exhibit R-3 Cost Analysis			DATE: **February 2002**									
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**		PROGRAM ELEMENT **0206313M Marine Corps Communications Sys**					PROJECT NUMBER AND NAME **C2510 MAGTF CSSE S&E**					
Cost Categories (Tailor to WBS, or Sys/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Dev											0.000	
Ancillary Hardware Dev											0.000	
Systems Engineering											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
ATLASS PIP	WR	SSC Chesapeake	0.966	0.477	01/01	3.136	12/01	3.527	11/02	Continuing	Continuing	
ATLASS PIP	RCP	MCSC, Quantico, VA				0.500	12/01	0.500	11/02	Continuing	Continuing	
TC-AIMS II	C/FFP	MCSC, Quantico, VA						0.301	01/03	0.000	0.301	
MAGTF CSSE&SE	C/FFP	Various				0.636	02/02	0.539	01/03	Continuing	Continuing	
SCN Reprogramming	TBD	TBD		0.400						0.000	0.400	
SBIR				0.000								
Subtotal Product Dev			0.966	0.877		4.272		4.867		Continuing	Continuing	
Remarks:												

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Development Support Equip											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
SCN REPROGRAMMING												
Subtotal Support			0.000	0.000		0.000				Continuing	Continuing	
Remarks:												

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Eval											0.000	
Operational Test & Eval											0.000	
Tooling											0.000	
TC-AIMS		MCOTEA,Quantico, VA				0.286	01/02				0.286	
Subtotal T&E						0.286				Continuing	Continuing	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis							DATE: **February 2002**					
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**		PROGRAM ELEMENT **0206313M Marine Corps Communications Sys**					PROJECT NUMBER AND NAME **C2510 MAGTF CSSE S&E**					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Contractor Eng Suppt											0.000	
Govt Engineering Suppt											0.000	
Program Mngmnt Suppt											0.000	
Travel											0.000	
Labor (Research Personnel)											0.000	
TC-AIMS II	WR	Various	0.071	0.194	Var					Continuing	Continuing	
Overhead											0.000	
Subtotal Management			0.071	0.194		0.000				0.000	0.265	
Remarks:												
Total Cost			1.037	1.071		4.558		4.867		Continuing	Continuing	

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification						DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational System Development**			PROGRAM ELEMENT (PE) NAME AND NO. **0206623M Marine Corps Ground Combat/Supporting Arms Systems**						
COST ($ in Millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost	**38.581**	**43.547**	**36.004**	**22.202**	**20.637**	**19.371**	**24.743**	**Cont**	**Cont**
C0021 Assault Amphibious Vehicle 7A1 (AAV7A1)	**0.432**	**0.359**	**0.372**	**0.382**	**0.394**	**0.402**	**0.410**	**Cont**	**Cont**
C1555 Light Armored Vehicle (LAV) PIP	**9.196**	**14.147**	**4.845**	**1.425**	**1.478**	**1.526**	**1.578**	**Cont**	**Cont**
C1901 Marine Corps Ground Weaponry PIP	**7.848**	**13.693**	**14.609**	**8.515**	**10.887**	**12.844**	**18.069**	**Cont**	**Cont**
C2086 Marine Enhanced Program (MEP)	**2.022**	**2.532**	**2.392**	**2.708**	**2.747**	**2.703**	**2.752**	**Cont**	**Cont**
C2237 Amphibious Vehicle Test Branch (AVTB)	**0.680**	**0.726**	**0.751**	**0.826**	**0.832**	**0.847**	**0.864**	**Cont**	**Cont**
C2503 Initial Issue	**1.662**	**1.295**	**1.113**	**1.139**	**1.162**	**1.049**	**1.070**	**Cont**	**Cont**
C2928 EIFGSWS (HIMARS)	**16.741**	**10.795**	**11.922**	**7.207**	**3.137**	**0.000**	**0.000**	**0.000**	**49.802**
Quantity of RDT&E Articles									

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This PE provides modification to Marine Corps Expeditionary Ground Force Weapon Systems to increase lethality, range, survivability and operational effectiveness. It also provides for the development of AAV7A1 reliability, maintainability, operational and safety modifications, improvements in command and control in the ADMS, product improvements to the family of LAVs and the development effort for the LAV-AD variant. The AVTB provides facilities and personnel which perform a broad range of testing, repair and technical services to amphibious vehicles.

This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing and manufacturing development for upgrades of existing systems.

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational System Development**	PROGRAM ELEMENT (PE) NAME AND NO. **0206623M Marine Corps Ground Combat/Supporting Arms Systems**

B. PROGRAM CHANGE SUMMARY

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	39.061	43.935	
(U) Adjustments from the President's Budget:			
(U) SBIR/STTR Transfer	-0.525		
(U) Execution Adjustment	-0.164		
(U) Minor Affordability Adjustment	-0.196	-0.388	
(U) Program Adjustment	0.405		
(U) FY 2003 President's Budget:	38.581	43.547	36.004

CHANGE SUMMARY EXPLANATION:

(U) Funding: See Above.

(U) Schedule:

(U) Technical: Not Applicable.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206623M Marine Corps Ground Combat/Supporting Arms Systems**			PROJECT NUMBER AND NAME **C0021 Assault Amphibious Vehicle 7A1 (AAV7A1)**					
COST ($ in Millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**0.432**	**0.359**	**0.372**	**0.382**	**0.394**	**0.402**	**0.410**	**Cont**	**Cont**
RDT&E Articles Qty									

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) The AAV7A1 RDT&E program provides for the development, test and preparation of Engineering Change Proposals (ECPs) to improve the performance, reliability, maintainability and safety of the AAV7A1 Family of Vehicles (FOV). This program also allows for the development of installation kits for the integration of communications and navigation equipment developed for integration into the AAV7A1 FOV.

PROGRAM ACCOMPLISHMENTS AND PLANS

FY 2001 Accomplishments

- (U) $ 0.432 Continued providing engineering support for development and integration of modification kits into AAV7A1 Family of Vehicles.

(U) Total $ 0.432

FY 2002 Planned Program

- (U) $ 0.359 Continue providing engineering support for development and integration of modification kits into AAV7A1 Family of Vehicles.

(U) Total $ 0.359

FY 2003 Planned Program

- (U) $ 0.372 Continue providing engineering support for development and integration of modification kits into AAV7A1 Family of Vehicles.

(U) Total $ 0.372

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206623M Marine Corps Ground Combat/Supporting Arms Systems**	PROJECT NUMBER AND NAME **C0021 Assault Amphibious Vehicle 7A1 (AAV7A1)**

(U) PROJECT CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	0.402	0.362	
(U) Adjustments from the President's Budget:			
(U) SBIR/STTR Transfer	-0.011		
(U) Execution Adjustment			
(U) Minor Affordability Adjustment		-0.003	
(U) Program Adjustment	0.041		
(U) FY 2003 PRESBUD Budget:	0.432	0.359	0.372

CHANGE SUMMARY EXPLANATION:
(U) Funding: See Above.
(U) Schedule: Not Applicable.
(U) Technical: Not Applicable.

(U) B. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) PMC, 202100, AAV 7A1 PIP	90.473	76.102	62.991	11.739	9.850	8.248	11.207	Continuing	Continuing

(U) C. ACQUISITION STRATEGY:

These efforts focus on the development of Engineering Change Proposals to improve performance, reliability, maintainability and safety of the Assault Amphibious Vehicle. Contractor support will be acquired using already existing contracts.

(U) D. SCHEDULE PROFILE: N/A

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206623M Marine Corps Ground Combat/Supporting Arms Systems**				PROJECT NUMBER AND NAME **C1555 Light Armored Vehicle (LAV) PIP**				
COST ($ in Millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**9.196**	**9.147**	**4.845**	**1.425**	**1.478**	**1.526**	**1.578**	**Cont**	**Cont**
RDT&E Articles Qty									

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Light Armored Vehicle Family of Vehicles (LAV FOV) consists of seven fielded LAV configurations, and one communications/intelligence-configured asset on an LAV chassis (Mobile Electronic Warfare Support System). Collectively, the LAV FOV provides a logistically self-contained, highly mobile, and lethal combined arms combat system to the Marine Air-Ground Task Force (MAGTF). This project funds for the development and testing of modifications falling within the purview of the LAV Service Life Extension Program (SLEP) (See PMC: LAV SLEP (FY 2002-FY 2005)) Product Improvement Program. LAV SLEP will ensure the LAV FOV will be capable of conducting its assigned missions through FY 2015 by enhancing lethality and survivability; reliability, availability, maintainability and durability; as well as reducing operations and support costs. The LAV SLEP will essentially invest in technologies currently existing on newer generations of Light Armored Vehicles and other weapons systems.

PROGRAM ACCOMPLISHMENTS AND PLANS

FY 2001 Accomplishments

- (U) $ 1.200 Completed development of LAV SLEP operational system prototypes for test and evaluation of SLEP modifications.
- (U) $ 4.252 Commenced developmental and operational testing and evaluation of 5 LAV SLEP modification prototypes.
- (U) $ 2.094 Continued development of LAV Service Life Extension Program to include fielding requirements, training, ILS, future maintenance requirements, and impacts to depot-level maintenance program.
- (U) $ 1.650 Conducted research and development of LAV Reliability Availability Maintainability (RAM) projects to include a one time installation and operational test of prototype two-speed transmissions prior to fielding.

(U) Total $ 9.196

FY 2002 Planned Program

- (U) $ 1.507 Complete developmental and operational testing (DT/OT) of SLEP operational system prototypes for test and evaluation (T&E) of SLEP mods.
- (U) $ 7.425 Development of 7 Thermal Sight Systems (TSS) prototypes for developmental and operational T&E of TSS modifications.
- (U) $ 3.939 Continue operational systems developmental and program management requirements for LAV SLEP and TSS.
- (U) $ 1.276 Conduct research and development of LAV RAM projects to include 2 speed transfer case and tire replacement initiatives.

(U) Total $ 14.147

(U) FY 2003 Planned Program:

- (U) $ 3.397 Conduct DT/OT of LAV TSS prototypes for T&E of TSS modifications.
- (U) $ 0.100 Complete development of TSS prototypes.
- (U) $ 1.348 Conduct research and development of LAV RAM projects.

(U) Total $ 4.845

***NOTE: LAV PIP REDUCTION OF $5M IN FY02 SHOULD HAVE BEEN APPLIED TO LIGHTWEIGHT 155.**

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206623M Marine Corps Ground Combat/Supporting Arms Systems**	PROJECT NUMBER AND NAME **C1555 Light Armored Vehicle (LAV) PIP**

(U) PROJECT CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	9.759	14.273	
(U) Adjustments from the President's Budget:			
(U) SBIR/STTR Transfer			
(U) Execution Adjustment			
(U) Minor Affordability Adjustment		-0.126	
(U) Program Adjustment	-0.563		
(U) FY 2003 President's Budget:	9.196	14.147	4.845

CHANGE SUMMARY EXPLANATION:
(U) Funding: See Above.
(U) Schedule: Not Applicable.
(U) Technical: Not Applicable.

(U) B. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) PMC, 203800, LAV PIP	1.693	25.454	53.166	65.478	57.019	10.487	3.718	Continuing	Continuing

(U) Related RDT&E: Not Applicable.

(U) C. ACQUISITION STRATEGY: The LAV Service Life Extension Program (SLEP) is designed to extend the service life of the LAV Family of Vehicles through 2015, an increase of 12 to 15 years beyond its original projected useful life. This is being done by utilizing both developmental and off-the-shelf technologies to enhance survivability, lethality, mobility and sustainability while simultaneously reducing the cost of wonership. PM, LAV uses multi-disciplined integrated product teams consisting of engineering, logistical, contracting and financial personnel to manage the SLEP. SLEP contracts have been designed using a winner-take-all methodology in order to reduce costs and encourage competition. PM, LAV retains oversight of the SLEP procurement.

(U) C. ACQUISITION STRATEGY: The LAV RAM project funds numerous low-dollar, yet extremely important minor modifications, support equipment and tools and other such projects that increase LAV reliability and readiness while simultaneously reducing operations and support costs. PM, LAV uses multi-disciplined integrated projuct teams consisting of engineering, logistical, contracting and financial personnel to manage RAM projects. The majority of contracts issued under the RAM line are subject to the competitive acquisition process. PM, LAV retains oversight of all LAV RAM projects.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-7 Operational Sys Dev	**0206623M Marine Corps Ground Combat/Supporting Arms Systems**	**C1555 Light Armored Vehicle (LAV) PIP**

(U) D. SCHEDULE PROFILE:

LAV SLEP

Milestone 0:	1st Qtr, FY 1998	Milestone III:	2nd Qtr, FY 2002
Milestone I:	2nd Qtr, FY 1999	Contract Award:	2nd Qtr, FY 2002
Milestone II:	2nd Qtr, FY 2000	IOC:	1st Qtr, FY 2003
DT / OT:	2nd Qtr, FY 2001	FOC:	1st Qtr, FY 2007

Program Funding Summary (APPN, BLI #, NOMEN)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) RDT&E,N	9.196	9.147	4.845	1.425	1.478	1.526	1.578	Continuing	Continuing
(U) PMC, BLI# 203800 LAV SLEP	1.693	25.454	53.166	65.478	57.019	10.487	3.718	Continuing	Continuing

CLASSIFICATION:

Exhibit R-3 Cost Analysis			DATE: **February 2002**									
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**		PROGRAM ELEMENT **0206623M Marine Corps Ground Combat/Supporting Arms Systems**			PROJECT NUMBER AND NAME **C1555 Light Armored Vehicle (LAV) PIP**							
Cost Categories (Tailor to WBS, or Sys/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Product Development											0.000	
Primary Hardware Dev	C/FF	Dies Div, GM	0.915							0.000	0.915	0.915
Primary Hardware Dev	CPFF	NRL	1.200							0.000	1.200	1.200
Primary Hardware Dev	CPIF	Metric Systems	4.500	3.940						0.000	8.440	8.440
Primary Hardware Dev	CPFF	GTRI/SURVICE	0.350	0.400	2Q01	0.450	1Q02			0.000	1.200	1.200
Gov't Dev Engineering	MIPR	In-House Product Dev	0.936	0.624	1Q01	0.731	1Q02			0.000	2.291	2.291
Product Development	Various	Other	9.926	2.273	Various	7.345	Various	3.345	Various	Continuing	Continuing	
Subtotal Product Dev			17.827	7.237		8.526		3.345		Continuing	Continuing	
Remarks: 17.827												
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Support												
Subtotal Support			0.000	0.000		0.000		0.000				
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis											DATE: **February 2002**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**			PROGRAM ELEMENT **0206623M Marine Corps Ground Combat/Supporting Arms Systems**			PROJECT NUMBER AND NAME **C1555 Light Armored Vehicle (LAV) PIP**							
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Test & Eval (T&E)												
Developmental Test & Eval	MIPR	LAV Test Dir, Yuma Prv Grnd	5.133	0.000		1.507	Various			0.000	6.640	6.640
Developmental Test & Eval	MIPR	Aberdeen Test Center	0.000	0.767	Various			0.900	1Q03	Continuing	Continuing	
Subtotal T&E			5.133	0.767		1.507		0.900		Continuing	Continuing	
Remarks:												
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Program Management												
Program Management	WR	PMO LAV, Tacom, MI	24.718	1.192	1Q01	4.114	1Q02	0.600	1Q03	Continuing	Continuing	
Subtotal Management			24.718	1.192		4.114		0.600		Continuing	Continuing	
Remarks:												
Total Cost				9.196		14.147		4.845		Continuing	Continuing	

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206623M Marine Corps Ground Combat/Supporting Arms Sys**				**C1901 Marine Corps Ground Weaponry PIP**				
COST ($ in Millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**7.848**	**13.693**	**14.609**	**8.515**	**10.887**	**12.844**	**18.069**	**Cont**	**Cont**
RDT&E Articles Qty									

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) This Project develops joint and Marine Corps unique improvements to infantry weapons and artillery technology, USMC unique Amphibious Armor Systems (AAS), improvements for the M1A1 Main Battle Tank and support systems, USMC Family of Small Craft, Ni

PROGRAM ACCOMPLISHMENTS AND PLANS

FY 2001 Accomplishments

- (U) $ 0.141 **Family of Artillery Munitions (FAM):** Supported a production decision for the Modular Artillery Charge System, to include Weapons Systems Explosive Safety Review Board testing, program support, and travel. Continue the active monitoring of U.S. Army artil
- (U) $ 0.550 **Family of Small Craft**: Provided Fault Analysis and Fault Isolation (FAFI) for the Riverine Assault Craft (RAC) and the Rigid Raiding Craft (RRC) and associated equipment at MCPD, Fallbrook, CA. Engineering analysis and development for the replacement Int
- (U) $ 1.132 **Fire Support Mods**: Continued joint participation in artillery and fire support improvement projects. Specifically, continued joint sustainment of the M198 Howitzer, Meteorological Measuring System and Firefinder Radar to include safety modifications and
- (U) $ 1.246 **Infantry Wpns Mods**: Continued joint participation and Marine Corps unique activities to improve the safety, lethality, and technology of Marine Corps infantry/reconnaissance individual and crew served weapons and equipment. Sought to integrate weapons sy
- (U) $ 2.625 **M1A1 Firepower Enhancements**: Completed preliminary design of integrated non-developmental item (NDI) package to include improved thermal sight, and north-finding/ far target location capability. Finalize fabrication/testing of prototypes.
- (U) $ 0.085 **Future Fighting Vehicle:** Provided organizational support and salaries in support of the Future Fighting Vehicle.
- (U) $ 0.188 **M1A1 Firepower Enhancment (Forward Finance) :** Conduct comparative assessments of competing designs and conduct system design review to finalize system performance specification. Perform Final Integration and Prove out. Procurement of test articles, co
- (U) $ 0.184 **M1A1 Armor Mods**: Continued joint evaluation of modifications including Component Enhancements, Advanced Fire Control Systems, Survivability Systems, Combat Identification and others.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206623M Marine Corps Ground Combat/Supporting Arms Sys**	**C1901 Marine Corps Ground Weaponry PIP**

- (U) $ 0.424 **Night Vision Mod Line**: Continued joint participation and Marine Corps unique activities for evaluation of safety, lethality and technology improvements for Marine Corps Night Vision Devices. Provides for In Service Engineering Activity (ISEA) at Naval Sur

- (U) $ 0.053 **Thermal Weapons Sight (TWS)[AN/PAS-13]:** Provided for joint participation in Pre-Planned Product Improvement (P3I) for TWS – remote image transfer, laser range finder, aimport reticle (mechanical, quadrant-style sight), mounting brackets for future small a

- (U) $ 1.220 **Target Location Designation and Hand-Off System (TLDHS):** Continued incremental refinement, coding, evaluation and Independant Verification & Validation (IV&V) of the TLDHS-specific software application to ensure interoperability with the emerging Marine C

(U) Total $ 7.848

FY 2002 Planned Program

- (U) $ 1.460 **AN/GVS-5-Laser Range Finder replacement Advanced Eye Safe Range Finder and Observation System (AEROS):** Funds will be used for engineering support and to purchase candidate systems for use in a down select. Systems will be used for developmental testing

- (U) $ 0.366 **AN/TPQ-46 Radar Mod**: Conduct analysis of U.S. Army led False Target Location Modifications (FTLM) engineering change proposal (ECP) package relative to defined requirements. Develop Milestone decision documentation for FTLM ECP.
- (U) $ 0.268 **Family of Artillery Munitions (FAM):** Support a production decision for the Modular Artillery Charge System, to include: Weapons Systems Explosive Safety Review Board testing, program support, and travel. Continue the active monitoring of U.S. Army artill

- (U) $ 0.594 **Family of Small Craft**: Funds will continue to provide for conducting engineering analysis and exploration of enhancements. Integration testing for a new navigation suite will begin. MCPD Fallbrook will continue to support Fault Analysis and Fault Isolat
- (U) $ 0.716 **Fire Support Mods**: Continue joint participation in artillery and fire support improvement projects. Specifically, developed a firing mechanism upgrade for the theodolite modification associated with the MMS as well as safety modifications and service lif
- (U) $ 0.820 **Infantry Wpns Mods**: Continue joint participation and Marine Corps unique activities for evaluation of safety, lethality, and technology improvements for Marine Corps infantry/reconnaissance individual /crew-served weapons. Past years efforts have impacte

- (U) $ 0.501 **Interim Small Unit Remote Scouting System (ISURSS):** Funds will be used for Operational System Development, Contractor support and Program Office Travel.
- (U) $ 7.762 **M1A1 Firepower Enhancement**: Conduct comparative assessments of competing designs and conduct system design review to finalize system performance specification. Perform Final Integration and Prove out. Procurement of test articles, conduct developmental

- (U) $ 0.000 **M1A1 Firepower Enhancment (Forward Finance FY 01 Funding) :** Conduct comparative assessments of competing designs and conduct system design review to finalize system performance specification. Perform Final Integration and Prove out. Procurement of tes

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206623M Marine Corps Ground Combat/Supporting Arms Sys**	**C1901 Marine Corps Ground Weaponry PIP**

- (U) $ 0.298 **M1A1 Armor Mods**: Continue joint participation and evaluation of prospective modifications including Component Enhancements, Advanced Fire Control Systems, Survivability Systems, Combat Identification, mobility and others.
- (U) $ 0.441 **Night Vision Mod Line**: Continue joint participation and Marine Corps unique activities for evaluation of safety, lethality and technology improvements for Marine Corps Night Vision Devices. Provides for In Service Engineering Activity (ISEA) at NSWC, Cran
- (U) $ 0.118 **Thermal Weapons Sight (TWS)[AN/PAS-13]**: Provide for joint participation in pre-planned product improvement (P3I) for TWS – remote image transfer, laser range finder, aimport reticle (mechanical, quadrant-style sight), mounting brackets for future small ar
- (U) $ 0.349 **Target Location Designation and Hand-Off System (TLDHS):** Continue incremental refinement, coding, evaluation and IV&V of the TLDHS-specific software application to ensure interoperability with the emerging Marine Corps tactical C4I architecture and with o

(U) Total $ 13.693

(U) FY 2003 Planned Program:

- (U) $ 1.802 **AN/GVS-5 Replacement (AEROS):** Funds will be used for engineering support and procurement of EMD systems for OT&E. DT and OT&E will be conducted. Funds will also be used for software development test and integration.
- (U) $ 0.284 **Family of Artillery Munitions (FAM):** Complete work associated with a production decision for the Modular Artillery Charge System, to include: Weapons Systems Explosive Safety Review Board testing, program support, and travel. Continue the active monitori
- (U) $ 0.464 **Family of Raids and Reconnaissance Equipment**: Continue participation with Natick Labs on refinement of Full Spectrum Battle Equipment (FSBE) program and enhancement of FSBE ensemble. Integrate logistics to standardize and improve existing close quarters
- (U) $ 0.107 **Family of Small Craft**: : Continue to pursue improvements for the Riverine Assault Craft and the rigid Raiding Craft. MCPD Fallbrook is the principle agency for supporting these efforts. Safety related issues will be priority, such as conducted in past y
- (U) $ 0.914 **Fire Support Mods**: Continue joint participation in artillery and fire support improvement projects. Specifically conduct life cycle analysis on the M198 Howitzer develop GPS-SASSAM capability for the MMS and develop light ECP and software upgrade for the
- (U) $ 0.823 **Infantry Wpns Mods**: Continue joint participation and Marine Corps unique activities for evaluation of safety, lethality, and technology improvements for Marine Corps infantry/reconnaissance individual /crew-served weapons. Funds will continue to explore

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
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- (U) $ 0.502 **Interim Small Unit Remote Scouting System (ISURSS)**: Funds will be used for Operational System Development, Contractor support and Program Office Travel.
- (U) $ 4.843 **M1A1 Firepower Enhancement**: Perform EMD phase activities. Procurement of test articles, conduct developmental and operational test and evaluation, pre-production technical reviews/audits, and logistical support development/planning.
- (U) $ 0.252 **M1A1 Armor Mods**: Continue joint participation and evaluation of prospective modifications including Component Enhancements, Advanced Fire Control Systems, Survivability Systems, Combat Identification, mobility and others.
- (U) $ 2.012 **Mortar Ballistic Computer (MBC)**: Initiate R&D efforts in development (including programmatic documentation and support), coding, evaluation, independent verification and validation of MBC technical firing computational software, and integration to a comme
- (U) $ 0.500 **Interium Passenger Helicopter Aircrew Breathing Device**: Initiate R&D efforts in development of underwater breathing device providing limited life-saving capability. Device will allow an underwater breathing capability for Marines who find themselves
- (U) $ 0.960 **Night Vision Mod Line**: Continue joint participation and Marine Corps unique activities for evaluation of safety, lethality and technology improvements for Marine Corps Night Vision Devices. Provides for In Service Engineering Activity (ISEA) at NSWC, Cran
- (U) $ 0.058 **Thermal Weapons Sight (TWS)[AN/PAS-13]:** Provide for joint participation in P3I for TWS – remote image transfer, laser range finder, aimport reticle (mechanical, quadrant-style sight), mounting brackets for future small arms weapons, vertical angle measure
- (U) $ 1.088 **Underwater Reconnaissance Capability (URC)**: Funds provided for Concept Exploration and development of prototypes for Divers Propulsion Device (DPD) and for the Tactical Hydrographic Survey Equipment (THSE) in support of Underwater Reconnaissance operation

(U)Total $ 14.609

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	7.999	13.815	
(U) Adjustments from the President's Budget:			
(U) SBIR/STTR Transfer	-0.097		
(U) Execution Adjustment			
(U) Minor Affordability Adjustment		-0.122	
(U) Program Adjustment	-0.054		
(U) FY 2003 President's Budget:	7.848	13.693	14.609

CHANGE SUMMARY EXPLANATION:
(U) Funding: See Above.
(U) Schedule: Not Applicable.
(U) Technical: Not Applicable.

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(U) B. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) PMC (BLI#206200) Improved Recovery Veh	42.232	20.758	4.179	3.749	0.721	0.158	0.000	0.000	71.797
(U) PMC (BLI#206300) Mod Kits (Tracked Veh)	21.292	3.776	3.297	23.486	29.924	39.414	45.935	Continuing	Continuing
(U) PMC (BLI#220900) Mod Kits (Arty & Other)	3.470	1.459	4.890	4.448	10.584	18.705	96.283	Continuing	Continuing
(U) PMC (BLI#222000) Under $5 Million	0.411	0.271	0.312	0.321	0.328	0.326	0.332	Continuing	Continuing
(U) PMC (BLI#233400) Modular Weapon System		4.345	24.352	14.024				0.000	42.721
(U) PMC (BLI#462000) <$5M (Comm&Electrnics)	10.585	8.912	16.097	12.831	9.276	7.041	7.435	Continuing	Continuing
(U) PMC (BLI#473300) Fire Support Systems	0.011	4.198	34.855	29.785	0.000	2.883	3.441	Continuing	Continuing
(U) PMC (BLI#475000) Items Under $5M (Intel)	1.011	1.633	1.843	2.250				Continuing	Continuing
(U) PMC (BLI#493000) Night Vision Equipment	21.155	28.999	23.204	30.305	34.374	24.107	7.472	Continuing	Continuing
(U) PMC (BLI#643400) Amphibious Raid Equip		2.319	22.295	26.439	13.956	13.461	12.284	Continuing	Continuing
(U) PMC (BLI#667000) Items Less Than $5M	8.965	7.586	5.772	10.323	11.683	11.505	11.528	Continuing	Continuing

(U) Related RDT&E:

(U) All Ground Weapons and Ground Ammunition Systems: Army, Navy, Air Force, Coast Guard, and Special Operations Command

(U) C. ACQUISITION STRATEGY:

(U) This line covers programs ranging from Off-The-Shelf modifications to Developmental Items. TLDHS acquires the Laser Locator Designator and Rangefinder (LLDR) being developed by the Army. This component is integrated with hand-held computer ru

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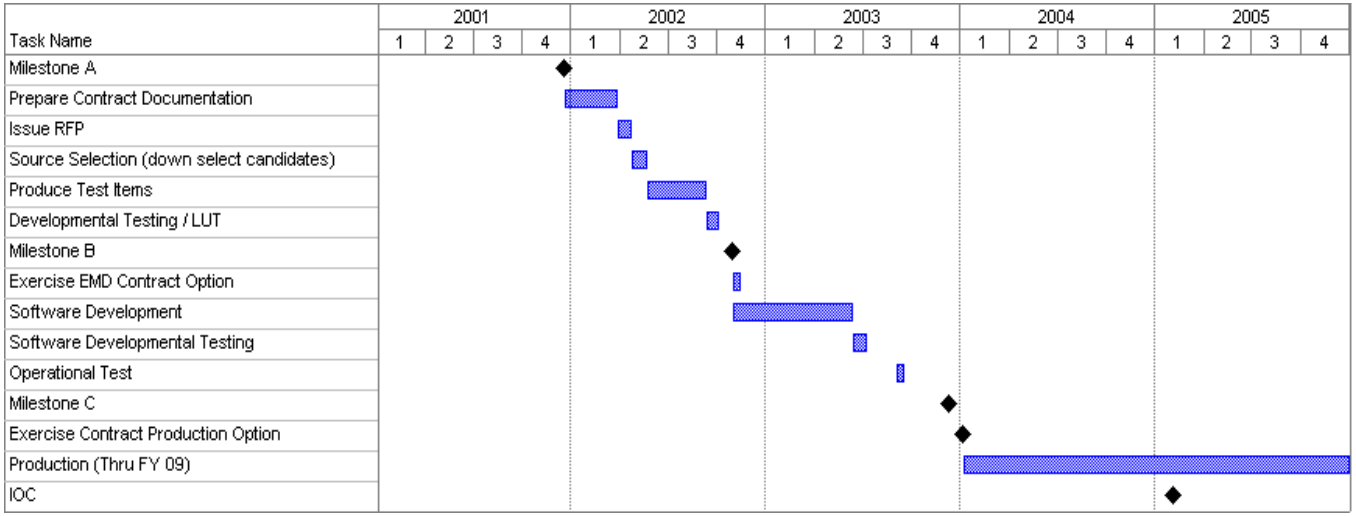
(U) D. SCHEDULE PROFILE:

AEROS PROGRAM

(AN/GVS-5 Replacement)



Program Funding Summary	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(APPN, BLI #, NOMEN)									
(U) RDT&E,N		1.460	1.802					0.000	3.262
(U) PMC, BLI# 493000 Nt Vision Eq				7.960	16.776	20.623	0.000	0.000	45.359

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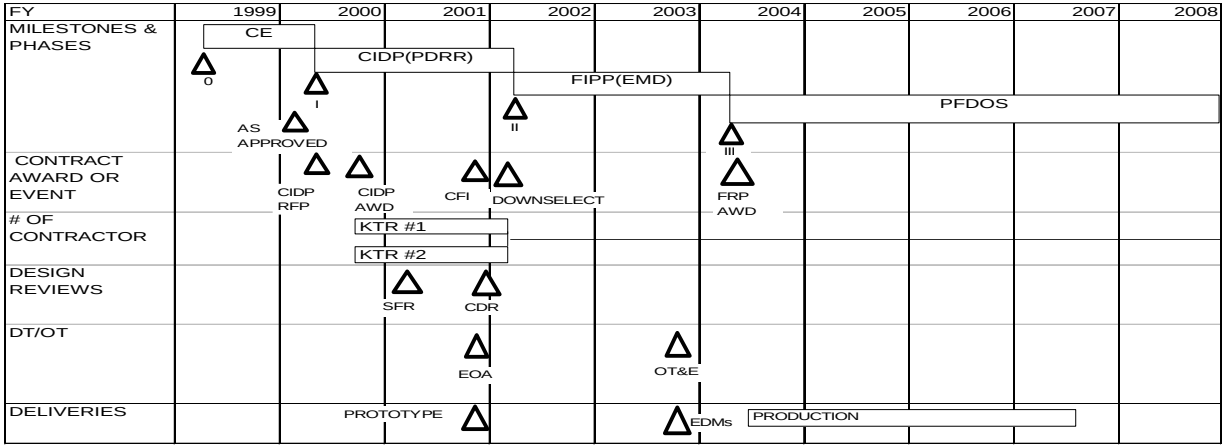
M1A1 Firepower Enhancement Program (FEP)



Program Funding Summary	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(APPN, BLI #, NOMEN)									
(U) RDT&E,N	2.813	7.762	4.843					0.000	15.418
(U) PMC BLI# 206300 Mod Kits (Tracked Vehicles)				20.699	25.331	35.047	41.279	Continuing	Continuing

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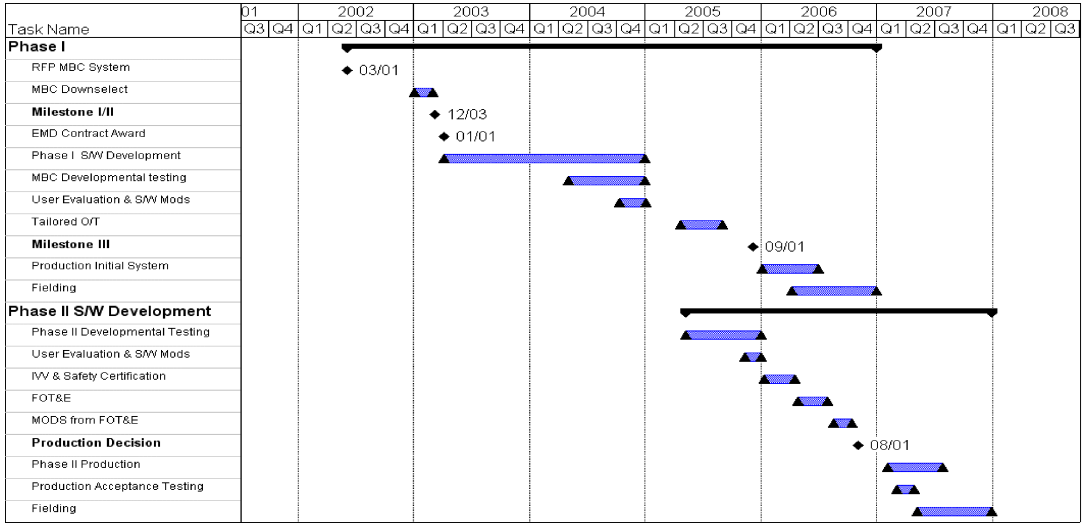
MORTAR BALLISTIC COMPUTER



Program Funding Summary (APPN, BLI #, NOMEN)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) RDT&E,N			2.012	2.551	3.635	0.650	0.053	0.000	8.901
(U) PMC BLI# 473300 Fire Support Systems						2.883	3.441	0.000	6.324

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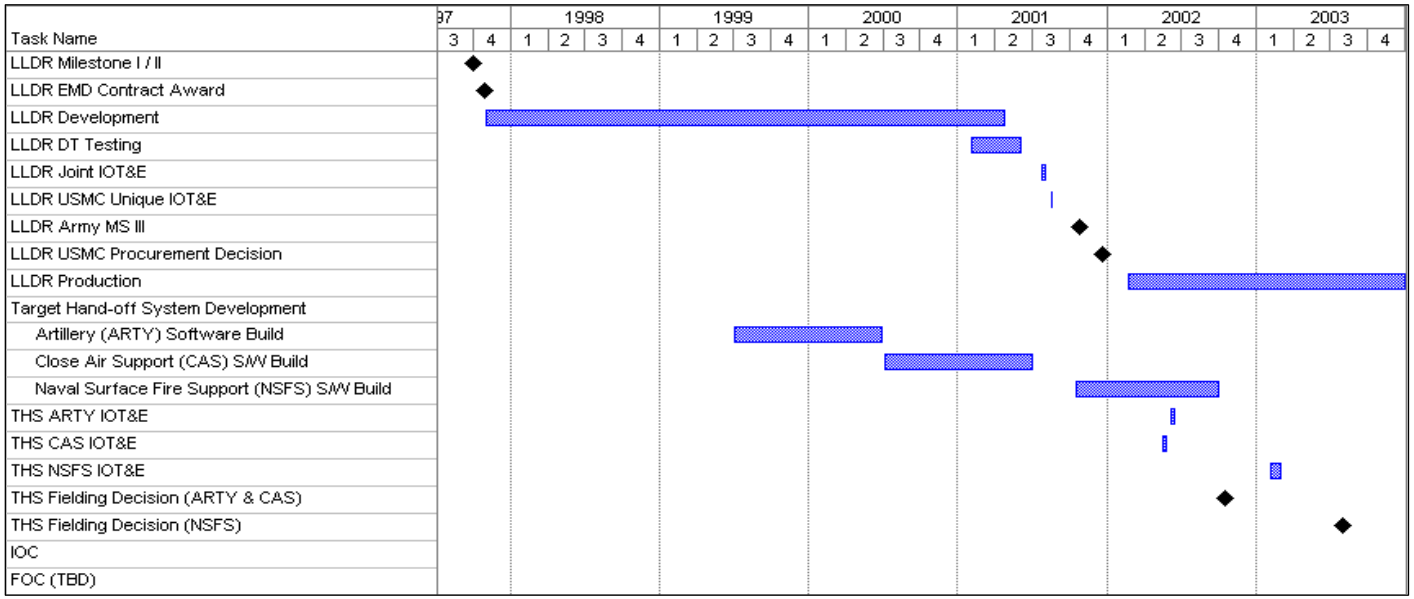
Target Location Designation Hand-off System (TLDHS)



LLDR - Lightweight Laser Designator Rangefinder THS - Target Hand-off System CAS - Close Air Support

Program Funding Summary	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(APPN, BLI #, NOMEN)									
(U) RDT&E,N	1.220	0.349						0.000	1.569
(U) PMC BLI# 473300 Fire Support Systems	0.011	4.198	34.855	29.785				0.000	68.849

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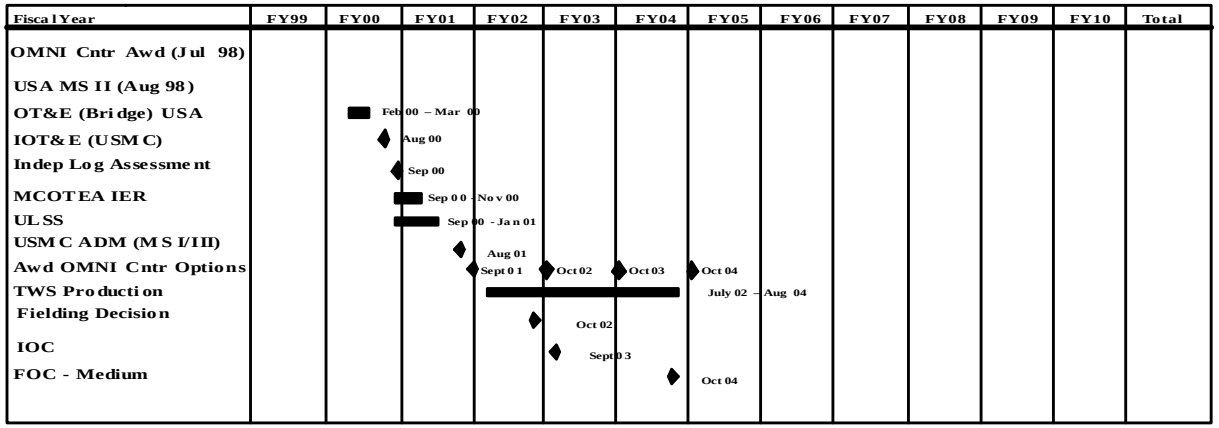
THERMAL WEAPON SIGHT (TWS)



Program Funding Summary	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(APPN, BLI #, NOMEN)									
(U) RDT&E,N	0.053	0.118	0.058	0.058	0.058			0.000	0.345
(U) PMC, BLI# 493000 Nt Vision Eq	14.169	18.500	18.526	19.111	13.930			0.000	84.236

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Cost Categories (Tailor to WBS, or Sys/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
PRODUCT DEVELOPMENT		**SEE BELOW**										
AN/GVS5 REPLACEMENT	RCP	TBD						1.100	2Q03	Continuing	Continuing	
AN/TPQ-46	RCP	TBD				0.201	1Q02			Continuing	Continuing	
Fam Impr Mortars	MIPR	PM Mortars, Picatinny NJ	0.155							Continuing	Continuing	
Fam Raid and Recon	MIPR	NATIC Labs, MA						0.300	1Q03	Continuing	Continuing	
Fam Raid and Recon	WR	CSS, Panama City, FL						0.100	1Q03	Continuing	Continuing	
Fam Small Craft Mods	WR/RCP	NSWC, Crane IN	0.785	0.325	1Q01	0.402	2Q02			Continuing	Continuing	
Fire Spt Mods	WR	Marine Det, Ft Sill, OK	0.130	0.050	1Q01	0.050	1Q02	0.050	1Q03	Continuing	Continuing	
Fire Spt Mods	MIPR	USArmy CECOM, Ft Monmouth NJ	0.205	0.198	2Q01	0.064	1Q02	0.064	1Q03	Continuing	Continuing	
Fire Spt Mods	WR	NSWC, Crane IN		0.030	1Q01					Continuing	Continuing	
Fire Spt Mods	VAR	VARIOUS		0.161	1Q01			0.250	2Q03	Continuing	Continuing	
IRV	MIPR	UDLP, York, PA	0.058							Continuing	Continuing	
Inf Weapon Mods	WR/RCP	MCCDC, Quantico, VA	0.527	0.198	1Q01	0.092	1Q02	0.050	1Q03	Continuing	Continuing	
Inf Weapon Mods	WR	WTBN	0.008					0.243	2Q03	Continuing	Continuing	
ISURSS	RCP	TBD				0.374	TBD	0.400	2Q03	Continuing	Continuing	
MBC	RCP	TBD						1.500	2Q03	Continuing	Continuing	
M1A1 Firepower	RCP	RATHEON/DRS	5.372	2.389	2Q01	7.137	2Q02	3.000	2Q03	Continuing	Continuing	
M1A1 Firepower	MIPR	Nt Vision Lab, Ft Belvoir, VA	0.200	0.200	2Q01	0.200	2Q02	0.200	2Q03	Continuing	Continuing	
M1A1 Mods	RCP	Ctr Nav Anl, Alexandria, VA	0.300							Continuing	Continuing	
M1A1 Mods	WR/RCP	TACOM, Warren MI	0.193							Continuing	Continuing	
M1A1 Mods	WR/RCP	TBD	0.023	0.153	1Q01	0.188	1Q02	0.132	2Q03	Continuing	Continuing	
Nt. Vision Mod	WR/RCP	NSWC, Crane IN	0.045	0.050	2Q01	0.041	1Q02	0.650	1Q03	Continuing	Continuing	
Nt. Vision Mod	MIPR	Nt Vision Lab, Ft Belvoir, VA	0.050	0.100	2Q01	0.100	2Q02	0.100	1Q03	Continuing	Continuing	
TWS	MIPR	Nt Vision Lab, Ft Belvoir, VA	0.242			0.018	2Q02	0.043	1Q03	Continuing	Continuing	
TWS	RCP	MCSC, Quantico, VA	0.138							Continuing	Continuing	
TLDHS	RCP	Synetics, Inc King George, VA	1.709	0.281	1Q01	0.126	1Q02			Continuing	Continuing	
TLDHS	MIPR	Nt Vision Lab, Ft Belvoir, VA	2.031							Continuing	Continuing	
IPHABD	MIPR	NATICK						0.500	1Q03	Continuing	Continuing	
Underwater Recon (URC)	WR	CSS, Panama City, FL						0.200	2Q03	Continuing	Continuing	
Underwater Recon (URC)	RCP	CSS, Panama City, FL						0.600	2Q03	Continuing	Continuing	
HABD	NA	NA										
Subtotal Product Dev			12.171	4.135		8.993		9.482		Continuing	Continuing	

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Cost Categories (Tailor to WBS, or System/Iter Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
PROGRAM SUPPORT		**SEE BELOW**										
AN/GVS-5	WR	MCSC, Quantico, VA				0.204	1Q02	0.204	1Q03	Continuing	Continuing	
AN/GVS-5	RCP	BAEST, Stafford, VA				0.109	10/05	0.109	1Q03	Continuing	Continuing	
AN/TPQ-46	RCP	BAEST, Stafford, VA				0.150	1Q02			Continuing	Continuing	
AN/TPQ-46	WR	MCSC, Quantico, VA				0.015	1Q02			Continuing	Continuing	
Fam Artillery Munitions	WR/RCP	BAEST, Stafford, VA	0.059	0.049	10/01	0.046	1Q02	0.062	1Q03	Continuing	Continuing	
Fam of Small Craft	RCP	BAEST, Stafford, VA						0.064	Q103	Continuing	Continuing	
Fam Small Craft Mods	RCP	ALS, Inc, Dumfries, VA	0.130							Continuing	Continuing	
Fam Small Craft Mods	RCP	BAEST, Stafford, VA		0.050	Various	0.050	1Q02			Continuing	Continuing	
Fam Small Craft Mods	WR	MCSC, Quantico, VA	0.096	0.050	05/01	0.050	10/05			Continuing	Continuing	
Fire Supt Mods	WR/RCP	BAEST, Stafford, VA	0.373	0.673	1Q01	0.522	1Q02	0.521	1Q03	Continuing	Continuing	
Fire Supt Mods	RCP	ALS, Inc, Dumfries, VA	0.452							Continuing	Continuing	
Fire Supt Mods	WR	NSWC, Dahlgren, VA	0.150							Continuing	Continuing	
Fire Supt Mods	MIPR	TACOM, Rock Island, IL		0.030	1Q00					Continuing	Continuing	
IRV	RCP	ALS, Inc, Dumfries, VA	0.050							Continuing	Continuing	
IRV	WR	MCSC, Quantico, VA	0.093							Continuing	Continuing	
Inf Wpns Mods	WR	MCSC, Quantico, VA	0.217	0.130	1Q01	0.130	1Q02	0.100	1Q03	Continuing	Continuing	
Inf Wpns Mods	RCP	ALS, Inc, Dumfries, VA	0.341							Continuing	Continuing	
Inf Wpns Mods	RCP	BAEST, Stafford, VA	0.096			0.350	1Q02	0.200	1Q03	Continuing	Continuing	
Inf Wpns Mods	WR/RCP	NSWC, Dahlgren, VA	0.580	0.227	1Q01	0.136	1Q02			Continuing	Continuing	
Inf Wpns Mods	WR	MCLB, Albana, GA	0.050	0.025	1Q01	0.025	1Q02			Continuing	Continuing	
Inf Wpns Mods	WR/RCP	NSWC, Crane, IN	0.181	0.031	1Q01	0.012	1Q02			Continuing	Continuing	
Inf Wpns Mods	WR/RCP	CSS, Panama City, FL	0.461							Continuing	Continuing	
ISURSS	WR/RCP	BAEST, Stafford, VA				0.127	1Q02	0.102	1Q03	Continuing	Continuing	
M1A1 Firepower	RCP	ALS, Inc, Dumfries, VA	0.064							Continuing	Continuing	
M1A1 Firepower	RCP	BAEST, Stafford, VA		0.064	2Q01	0.361	2Q02			Continuing	Continuing	
M1A1 Firepower	MIPR	GDLS, Warren, MI/ARDEC/NVL	0.472	0.500	1Q01			0.500	2Q03	Continuing	Continuing	
M1A1 Mods	RCP	ALS, Inc, Dumfries, VA	0.080							Continuing	Continuing	
M1A1 Mods	RCP	BAEST, Stafford, VA		0.032	Various	0.040	1Q02			Continuing	Continuing	
M1A1 Mods	WR	MCSC, Quantico, VA	0.110	0.050	1Q01	0.050	1Q02			Continuing	Continuing	
MBC	WR	MCSC, Quantico, VA	0.075					0.200	1Q03	Continuing	Continuing	
Nt Vision Mod	WR	MCSC, Quantico, VA	0.075	0.038	1Q01	0.125	Various	0.050	1Q03	Continuing	Continuing	

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PROGRAM SUPPORT (continued) SEE BELOW												
Nt Vision Mod	RCP	ALS, Inc, Dumfries, VA	0.055							Continuing	Continuing	
Nt Vision Mod	RCP	BAEST, Stafford, VA		0.147	Various	0.150	1Q02	0.135	2Q03	Continuing	Continuing	
TWS	WR	MCSC, Quantico, VA	0.102	0.016	Various	0.030	Various			Continuing	Continuing	
TWS	RCP	ALS, Inc, Dumfries, VA	0.185							Continuing	Continuing	
TWS	RCP	BAEST, Stafford, VA		0.037	Various	0.050	Various	0.015	2Q03	Continuing	Continuing	
TLDHS	RCP	ALS, Inc, Dumfries, VA	0.165							Continuing	Continuing	
TLDHS	RCP	BAEST, Stafford, VA		0.396	Various	0.045	Various			Continuing	Continuing	
TLDHS	WR	MCSC, Quantico, VA	0.160	0.083	1Q01	0.013	Various			Continuing	Continuing	
TLDHS	WR	NSWC, Dahlgren, VA	0.970							Continuing	Continuing	
Underwater Recon (URC)	WR	MCSC, Quantico, VA						0.088	2Q03	Continuing	Continuing	
Subtotal Support			5.842	2.628		2.790		2.350				
Remarks:												

Cost Categories (Tailor to WBS, or System/Iter Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 COST	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
T&E		**SEE BELOW**										
AN/GVS-5 Replcmnt	MIPR	AMCOM, Huntsville, AL				1.147	1Q02			Continuing	Continuing	
AN/GVS-5 Replcmnt	WR	TBD						0.289	2Q03	Continuing	Continuing	
Family Arty Mun	WR/RCP	NSWC, Crane, IN	0.089	0.093	1Q01	0.222	1Q02	0.222	1Q03	Continuing	Continuing	
Family Small Craft Mods	WR	NSWC, Crane, IN	0.146	0.085	1Q01	0.092	1Q02			Continuing	Continuing	
Family Small Craft Mods	WR	Fallbrook, CA						0.077	1Q03	Continuing	Continuing	
Family Small Craft Mods	WR	Carderock, MD						0.010	1Q03	Continuing	Continuing	
Fire Spt Mods	WR	MCOTEA, Quantico, VA	0.025					0.063	2Q03	Continuing	Continuing	
IRV	WR	CSS, Panama City, FL	0.260							Continuing	Continuing	
Inf Wpn Mods	WR	MCOTEA, Quantico, VA	0.060	0.010	Various	0.010	Various	0.066	2Q03	Continuing	Continuing	
Inf Wpn Mods	WR	MCCDC, Quantico, VA	0.105	0.065	Various	0.065	Various	0.050	2Q03	Continuing	Continuing	
MBC	WR	TBD						0.212	2Q03	Continuing	Continuing	
M1A1 Firepower	MIPR	ARDEC, Rock Island, IL	0.030	0.020	1Q01	0.020	1Q01	0.025	2Q03	Continuing	Continuing	
M1A1 Firepower	WR	MCOTEA, Quantico, VA	0.100					0.933	2Q03	Continuing	Continuing	

CLASSIFICATION:

Exhibit R-3 Cost Analysis			DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**	PROGRAM ELEMENT **0206623M Marine Corps Ground Combat/Supporting Arms Sys**	PROJECT NUMBER AND NAME **C1901 Marine Corps Ground Weaponry PIP**	

Cost Categories (Tailor to WBS, or System/Iter Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
T&E (continued)		**SEE BELOW**										
Nt Vision Mods	WR	MCOTEA, Quantico, VA	0.050	0.025	2Q01	0.025	2Q01	0.025	2Q03	Continuing	Continuing	
TWS	WR	MCOTEA, Quantico, VA	0.050			0.020	Various			Continuing	Continuing	
TLDHS	WR	NSWC, Dahlgren, VA	0.299	0.297	1Q01	0.085	1Q01			Continuing	Continuing	
TLDHS	WR	MCOTEA, Quantico, VA	0.252	0.117	2Q01	0.075	2Q01			Continuing	Continuing	
Subtotal T&E			1.466	0.712		1.761		1.972		Continuing	Continuing	
Remarks:												

Cost Categories (Tailor to WBS, or System/Iter Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
MANAGEMENT		**SEE BELOW**										
AN/GVS-5 REPLCMT	RCP	BAEST, Stafford, VA						0.100	1Q03			
Fam Improved Mortars	WR	MCSC, Quantico, VA	0.008							Continuing	Continuing	
Fire Supt Mods	WR	MCSC, Quantico, VA	0.392	0.190	1Q02	0.080	1Q02	0.080	1Q03	Continuing	Continuing	
Inf Wpns Mods	RCP	ALS, Inc, Dumfries, VA	0.114	0.159						Continuing	Continuing	
MBC	RCP	BAEST, Stafford, VA						0.100	1Q03	Continuing	Continuing	
M1A1 MOD KIT	RCP	BAEST, Inc, Dumfries, VA	0.011					0.120	1Q03	Continuing	Continuing	
M1A1 Firepower	RCP	BAEST, Stafford, VA		0.011	2Q01	0.064	2Q02	0.185	2Q03	Continuing	Continuing	
TLDHS	RCP	ALS, Inc, Dumfries, VA	0.018							Continuing	Continuing	
Underwater Recon (URC)	RCP	BAEST, Stafford, VA						0.200	2Q03	Continuing	Continuing	
Fam of Raid and Recon	WR	MCSC, Quantico, VA						0.020	2Q03	Continuing	Continuing	
TLDHS	RCP	BAEST, Stafford, VA		0.013	Various	0.005	Various			Continuing	Continuing	
Subtotal Management			0.543	0.373		0.149		0.805		Continuing	Continuing	
Remarks:												

Total Cost				7.848	0.000	13.693	0.000	14.609		Continuing	Continuing	

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206623M Marine Corps Ground Combat Arms Systems**					**C2086 Marine Enhancement Program (MEP)**			
COST ($ in Millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**2.022**	**2.532**	**2.392**	**2.708**	**2.747**	**2.703**	**2.752**	**Cont**	**Cont**
RDT&E Articles Qty									

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) This program was formerly titled Soldier/Marine Enhancement. MEP provides Research, Development, Test and Evaluation funding for low visibility, low cost items. It focuses on items of equipment which will benefit the individual Marine by reducing the load, increasing survivability, enhancing safety and improving combat effectiveness. The emphasis of the program is on non-developmental item/commercial off the shelf (NDI/COTS) available items which can be quickly evaluated and fielded. This program is coordinated with the Army's Soldier Enhancement Program and the Special Operations Command.

PROGRAM ACCOMPLISHMENTS AND PLANS

FY 2001 Accomplishments

- (U) $ 0.706 Continued to explore NDI equipment that will improve the combat effectiveness and enhance safety and survivability of the Individual Marine.
- (U) $ 0.555 Continued to explore clothing and individual equipment NDI categories.
- (U) $ 0.761 Continued to explore ground weapons, communications and command and control equipment NDI categories.

(U) Total $ 2.022

FY 2002 Planned Program

- (U) $ 0.880 Continue to explore NDI equipment that will improve the combat effectiveness and enhance safety and survivability of the Individual Marine.
- (U) $ 0.834 Continue to explore clothing and individual equipment NDI categories.
- (U) $ 0.818 Continue to explore ground weapons, communications and command and control equipment NDI categories.

(U) Total $ 2.532

(U) FY 2003 Planned Program:

- (U) $ 0.779 Continue to explore NDI equipment that will improve the combat effectiveness and enhance safety and survivability of the Individual Marine.
- (U) $ 0.844 Continue to explore clothing and individual equipment NDI categories.
- (U) $ 0.769 Continue to explore ground weapons, communications and command and control equipment NDI categories.

(U)Total $ 2.392

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	
RDT&E, N /BA-7 Operational Sys Dev	**0206623M Marine Corps Ground Combat Arms Systems**	**C2086 Marine Enhancement Program (MEP)**

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	1.640	2.555	
(U) Adjustments from the President's Budget:			
(U) SBIR/STTR Transfer	-0.012		
(U) Execution Adjustment			
(U) Minor Affordability Adjustment		-0.023	
(U) Program Adjustment	0.394		
(U) FY 2003 President's Budget:	2.022	2.532	2.392

CHANGE SUMMARY EXPLANATION:
(U) Funding: See Above.
(U) Schedule: Not Applicable.
(U) Technical: Not Applicable.

(U) B. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) PMC (BLI #221100) MEP	7.025	4.288	8.145	7.051	4.133	3.936	3.930	Continuing	Continuing
(U) O&M Initial Issue Active	32.173	27.662	28.188	28.808	29.442	30.253	31.106	Continuing	Continuing
(U) O&M Initial Issue Reserve	12.758	7.749	7.900	7.997	8.095			Continuing	Continuing

(U) Related RDT&E: PE 0604713A (Combat Feeding, Clothing and Equipment)

(U) C. ACQUISITION STRATEGY: * An explanation of acquisition, management, and contracting strategies shall be provided for each project.
Acquisition Strategies are program specific. They vary from modified NDI to short term developmental programs.

(U) D. SCHEDULE PROFILE: N/A

CLASSIFICATION:

Exhibit R-3 Cost Analysis											DATE: **February 2002**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**		PROGRAM ELEMENT **0206623M Marine Corps Ground Combat Arms Systems**			PROJECT NUMBER AND NAME **C2086 Marine Enhanced Program (MEP)**							
Cost Categories (Tailor to WBS, or Sys/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Product Development	WR	Lexington-Bluegrass, Lexington KY	2.399	0.048	1Q01	0.052	1Q02	0.049	1Q03	Continuing	Continuing	
Product Development	WR	NOC PacDiv, Fallbrook, CA	0.203	0.035	1Q01	0.040	1Q02	0.036	1Q03	Continuing	Continuing	
Product Development	WR/RCP	MCTSSA, CamPen, CA	0.608	0.005	1Q01	0.018	1Q02	0.006	1Q03	Continuing	Continuing	
Product Development	WR/RCP	NCTRF, Aberdeen, MD	0.320	0.178	1Q01	0.035	1Q02	0.119	1Q03	Continuing	Continuing	
Product Development	MIPR	NATICK, Natick, MA	1.338	0.070	2Q01	0.151	1Q02	0.071	1Q03	Continuing	Continuing	
Product Development	MIPR	ARL/APG Aberdeen, MD	0.254	0.008	1Q01	0.022	2Q02	0.010	2Q03	Continuing	Continuing	
Product Development	MIPR	NSMA, Washington DC	0.189	0.173	1Q01	0.020	1Q02	0.020	1Q03	Continuing	Continuing	
Product Development	MIPR	TACOM, Warren MI	0.077	0.011	2Q01	0.012	2Q02	0.012	2Q03	Continuing	Continuing	
Product Development	MIPR	2nd MARDIV, CamLej, NC	0.407	0.020	2Q01	0.038	2Q02	0.030	2Q03	Continuing	Continuing	
Product Development	WR	2nd MARDIV, CamLej, NC	0.068	0.004	1Q01	0.008	1Q02	0.005	1Q03	Continuing	Continuing	
Product Development	WR	NCCOSC, San Diego, CA	0.233	0.014	1Q01	0.022	2Q02	0.014	2Q03	Continuing	Continuing	
Product Development	WR	NCSS, Panama City, FL	1.888	0.012	2Q01	0.035	1Q02	0.030	1Q03	Continuing	Continuing	
Product Development	WR	NSWC, Crane, IN	2.032	0.040	1Q01	0.097	1Q02	0.090	1Q03	Continuing	Continuing	
Product Development	WR	NAWC Air Div, Pax River, MD	0.294	0.041	1Q01	0.072	1Q02	0.063	1Q03	Continuing	Continuing	
Product Development	WR	II MEF, CamLej, NC	0.085	0.005	1Q01	0.010	1Q02	0.007	1Q03	Continuing	Continuing	
Subtotal Product Dev			10.395	0.664		0.632		0.562		Continuing	Continuing	

Remarks:

CLASSIFICATION:

Exhibit R-3 Cost Analysis						DATE: **February 2002**							
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**			PROGRAM ELEMENT **0206623M Marine Corps Ground Combat Arms Systems**			PROJECT NUMBER AND NAME **C2086 Marine Enhanced Program (MEP)**							
Cost Categories (Tailor to WBS, or System/Iter Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Integrated Logistics Support	WR	MCCDC, Quantico, VA	2.076	0.037		0.095		0.050		Continuing	Continuing	
Integrated Logistics Support	Various	MISC	4.580	0.029		0.070		0.060		Continuing	Continuing	
Subtotal Support			6.656	0.066		0.165		0.110				
Remarks:												
Cost Categories (Tailor to WBS, or System/Iter Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Eval	WR/RCP	MCTSSA, CamPen, CA	1.842	0.024	1Q01	0.054	1Q02	0.055	1Q03	Continuing	Continuing	
Developmental Test & Eval	WR/RCP	NCTRF, Aberdeen, MD	0.856	0.005	1Q01	0.018	1Q02	0.020	1Q03	Continuing	Continuing	
Developmental Test & Eval	MIPR	NATICK, Natick, MA	2.595	0.185	2Q01	0.290	2Q02	0.290	2Q03	Continuing	Continuing	
Developmental Test & Eval	MIPR	ARL/APG Aberdeen, MD	0.813	0.014	2Q01	0.035	2Q02	0.180	2Q03	Continuing	Continuing	
Developmental Test & Eval	MIPR	PPSC, Phjladelphia, PA	0.050	0.005	3Q01	0.024	3Q02	0.026	3Q03	Continuing	Continuing	
Developmental Test & Eval	WR/RCP	MCAGCC 29 Palms, CA	0.359	0.010	2Q01	0.020	2Q02	0.019	2Q03	Continuing	Continuing	
Developmental Test & Eval	MIPR	NSMA, Washington DC	0.560	0.021	1Q01	0.035	1Q02	0.035	1Q03	Continuing	Continuing	
Developmental Test & Eval	MIPR	TACOM, Warren MI	0.220	0.021	1Q01	0.031	1Q02	0.033	1Q03	Continuing	Continuing	
Developmental Test & Eval	MIPR	NHRC, Crane, IN	1.623	0.357	2Q01	0.292	2Q02	0.295	2Q03	Continuing	Continuing	
Developmental Test & Eval	WR	2nd MARDIV, CamLej, NC	0.236	0.012	1Q01	0.025	1Q02	0.026	1Q03	Continuing	Continuing	
Developmental Test & Eval	WR	NCCOSC, San Diego, CA	0.710	0.036	2Q01	0.046	2Q02	0.045	2Q03	Continuing	Continuing	
Developmental Test & Eval	WR	NCSS, Panama City, FL	6.207	0.015	1Q01	0.027	1Q02	0.030	1Q03	Continuing	Continuing	
Developmental Test & Eval	WR	NSWC, Crane, IN	6.820	0.195	1Q01	0.247	1Q02	0.249	1Q03	Continuing	Continuing	
Developmental Test & Eval	WR	NAWC Air Div, Pax River, MD	0.950	0.176	1Q01	0.275	1Q02	0.276	1Q03	Continuing	Continuing	
Developmental Test & Eval	WR	NSWC, Indian Head, MD	0.566	0.010	3Q01	0.020	3Q02	0.021	3Q03	Continuing	Continuing	
Developmental Test & Eval	Various	MISC	8.988	0.206		0.296		0.120		Continuing	Continuing	
Subtotal T&E			33.395	1.292		1.735		1.720		Continuing	Continuing	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis						DATE: **February 2002**							
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**			PROGRAM ELEMENT **0206623M Marine Corps Ground Combat Arms Systems**			PROJECT NUMBER AND NAME **C2086 Marine Enhanced Program (MEP)**							
Cost Categories (Tailor to WBS, or System/Iter Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Contractor Eng Suppt											0.000	
Govt Engineering Suppt											0.000	
Program Mngmnt Suppt											0.000	
Travel											0.000	
Labor (Research Personnel)											0.000	
Overhead											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Total Cost			50.446	2.022		2.532		2.392		Continuing	Continuing	

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification					DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206623M Marine Corps Ground Combat Arms Systems**				PROJECT NUMBER AND NAME **C2237 Amphibious Vehicle Test Branch (AVTB)**				
COST ($ in Millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**0.680**	**0.726**	**0.751**	**0.826**	**0.832**	**0.847**	**0.864**	**Cont**	**Cont**
RDT&E Articles Qty									

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) The Amphibious Vehicle Test Branch (AVTB) is a one-of-a-kind Department of Defense test facility for amphibious vehicles and supports the requirements of all Services. The AVTB conducts developmental, combined developmental/operational, and follow-on testing and evaluation of production hardware. It also conducts Product Assurance Testing and Substitute or alternative parts and material testing for amphibious vehicles and associated equipment. Because of its year-round temperate climate, diverse terrain, and 17 miles of coastline, the AVTB is ideal for the amphibious vehicle, as well as ship related testing. The AVTB is in close proximity to San Clemente island which is used frequently for live fire sea-to-shore testing and high-speed water testing. The AVTB is committed to testing product improvement programs, engineering change proposal design changes, and field change requests.

PROGRAM ACCOMPLISHMENTS AND PLANS

FY 2001 Accomplishments

- (U) $ 0.550 Maintained, refurbished, upgraded, and replaced test equipment and instrumentation used to provide program support, supplies, and services at AVTB test site which supported scheduled Assault Amphibious Vehicle 7A1 (AAV7A1) "rebuild to standard" testing, Advanced Amphibious Assault Vehicle (AAAV) Development Testing, Light Armored Vehicle Service Life Extension Program as well as other Marine Corps mobility and mine warfare programs. Upgraded instrumentation for over the horizon capability in developing weapons systems which supported operational maneuver from the sea. Programmed on-site support, supplies, and services which supported Naval Sea System Command and Naval Mine Warfare Command for development testing of Navy mine countermeasures system. Provided services and support to the Department of Defense Common Test and Training Range Architecture workshops. These funds provided organic supply support including management operations, advertising, general accounting, and a maintenance float of equipment. Provided intermediate maintenance of organic non-developmental communication/ordnance equipment.
- (U) $ 0.130 Provided funding for necessary services provided by Marine Corps Base, Camp Pendleton (MCB CAMPEN), California for electricity, heating, and other power charges; and long distance telephone support. Provided funding for calibration of laboratory test equipment and maintenance services provided by Marine Corps Logistics Base Barstow and 1st Force Service Support Group (FSSG).

(U) Total $ 0.680

FY 2002 Planned Program

- (U) $ 0.565 Maintenance, refurbishment, upgrade, and replacement of test equipment and instrumentation needed to provide program support, supplies, and services at AVTB test site to support scheduled Assault Amphibious Vehicle 7A1 (AAV7A1) "rebuild to standard" testing, Advanced Amphibious Assault Vehicle (AAAV) Development Testing, Light Armored Vehicle Service Life Extension Program as well as other Marine Corps mobility and mine warfare programs. Upgrade instrumentation for over the horizon capability in developing weapons systems to support operational maneuver from the sea. Program on-site support, supplies, and services to support Naval Sea System Command and Naval Mine Warfare Command for development testing of Navy mine countermeasures system. Provide services and support to the Department of Defense Common Test and Training Range Architecture workshops. These funds provide organic supply support including management operations, advertising, general accounting, and a maintenance float of equipment. Provide intermediate maintenance (third echelon) of organic non-developmental communication electronic and ordnance equipment.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-7 Operational Sys Dev	**0206623M Marine Corps Ground Combat Arms Systems**	**C2237 Amphibious Vehicle Test Branch (AVTB)**

- (U) $ 0.161 Provide funding for necessary services provided by Marine Corps Base, Camp Pendleton (MCB CAMPEN), California for electricity, heating, and other power charges; and long distance telephone support. Provide funding for calibration of laboratory test equipment and maintenance services provided by MCLB Barstow and 1 Force Service Support Group (FSSG).

(U) Total $ 0.726

(U) FY 2003 Planned Program:

- (U) $ 0.587 Maintenance, refurbishment, upgrade, and replacement of test equipment and instrumentation needed to provide program support, supplies, and services at AVTB test site to support scheduled and unscheduled Assault Amphibious Vehicle 7A1 (AAV7A1) component testing, Advanced Amphibious Assault Vehicle (AAAV) Development Testing, Light Armored Vehicle Service Life Extension Program as well as other Marine Corps mobility and mine warfare programs. Upgrade instrumentation for over the horizon capability in developing weapons systems to support operational maneuver from the sea. Program on-site support, supplies, and services to support Naval Sea System Command and Naval Mine Warfare Command for development testing of Navy mine countermeasures system. Provide services and support to the Department of Defense Common Test and Training Range Architecture workshops. These funds provide organic supply support including management operations, advertising, general accounting, and a maintenance float of equipment. Provide intermediate maintenance (third echelon) of organic non-developmental communication electronic and ordnance equipment.

- (U) $ 0.164 Provide funding for necessary services provided by Marine Corps Base, Camp Pendleton (MCB CAMPEN), California for electricity, heating, and other power charges; and long distance telephone support. Provide funding for calibration of laboratory test equipment and maintenance services provided by MCLB Barstow and 1 Force Service Support Group (FSSG).

(U) Total $ 0.751

(U) Project Change Summary:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	0.717	0.732	
(U) Adjustments from the President's Budget:			
(U) SBIR/STTR Transfer	-0.003		
(U) Execution Adjustment			
(U) Minor Affordability Adjustment		-0.006	
(U) Program Adjustment	-0.034		
(U) FY 2003 President's Budget:	0.680	0.726	0.751

CHANGE SUMMARY EXPLANATION:
(U) Funding: See Above.
(U) Schedule: Not Applicable.
(U) Technical: Not Applicable.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-7 Operational Sys Dev	**0206623M Marine Corps Ground Combat Arms Systems**	**C2237 Amphibious Vehicle Test Branch (AVTB)**

(U) B. OTHER PROGRAM FUNDING SUMMARY: Not Applicable

Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost

(U) Related RDT&E: PE 0603611M (Marine Corps Assault Vehicles)

(U) C. ACQUISITION STRATEGY:

Work will be lead in-house. Necessary contractor support will be provided by Marine Corps Base Camp Pendleton by using existing contracts. General Services Administration will be used for vehicle leasing contract.

(U) D. SCHEDULE PROFILE:

Testing conducted at AVTB includes all aspects of Marine Corps Assault Amphibious Vehicles. Testing planned for FY 02 and beyond includes MK 155 Minefield Breaching System, NBC overpressure system, RAM/RS (Reliability, Availability and Maintainability/Rebuild to Standard) Operational Testing Support and Production Assurance testing. Engineering Change Proposals (ECP) as required; upgrade instrumentation for over the horizon capability in developing weapons systems to support operational maneuver from the sea, support for the Light Armored Vehicle Service Life Extension Program; C4I integrated support for AAV Communications and 7 RAM/RS. AVTB will also support the testing of the Advanced Amphibian Assault Vehicle (AAAV) as directed, by DRPM AAA, during the Engineering & Manufacturing Development phase of the AAAV Program Development.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Development**	PROGRAM ELEMENT NUMBER AND NAME **0206623M Marine Corps Ground Combat/Supporting Arms Systems**				PROJECT NUMBER AND NAME **C2503 Initial Issue**				
COST ($ in Millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**1.662**	**1.295**	**1.113**	**1.139**	**1.162**	**1.049**	**1.070**	**Cont**	**Cont**
RDT&E Articles Qty									

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Initial Issue program provides Research, Development, Test and Evaluation of low visibility, low cost items with emphasis on non-developmental/commercially available items. Items approved for procurement will transition into the O&M Initial Issue program. Focus is on clothing and equipment items (i.e. improved jungle and desert boots, light weight helmet, combat boots, sleeping bags) which will benefit the individual Marine by reducing the load with less bulky, lightweight, comfortable equipment, increasing survivability and improving combat effectiveness. Initial Issue continues to explore the spectrum of technologies commercially available that can provide enhancement in individual protection, tactical mobility and application of state-of-the-art technologies through studies and testing.

PROGRAM ACCOMPLISHMENTS AND PLANS

FY 2001 Planned Program

- (U) $ 1.474 Continued to validate and incorporate commercial technologies into individual combat clothing and equipment. Conducted comparative analysis through boot study (fatigue, shear force, injury rates, energy consumption) of new infantry combat boots and existing foot wear. Conducted study/analysis of the Army's Land Warrior program for commercial technology insertion to complement the Marine Corps Integral Combat System (our version of Land Warrior). Evaluated commercial power source/recharging systems through individual movement (Piezoelectrics). Evaluated and incorporated cost-effective commercial fabric technologies into the Battle Dress uniform.
- (U) $ 0.078 Completed development and testing of the Forward Resusitative Surgery System. Continued operational assessment and provided test data to the Medical Community for acceptance.
- (U) $ 0.110 Completed reconfiguration of two Digital Radiography (DR) prototypes incorporating field user recommendations.

(U) Total $ 1.662

FY 2002 Planned Program

- (U) $ 1.052 Continued the exploration of new commercial technologies that can be inserted into current body armor, load bearing, footwear and clothing systems to reduce weight, increase survivability, lethality and mobility. Both torso and head/neck ballistic studies will be conducted to assess blunt trauma/shock forces on the body and how ballistic materials/designs can afford the most protection while reducing weight. Modeling and simulation initiatives will enable the baselining of current equipment and configuration/compatibility management of new equipment initiatives. Funding went toward research and development of the Military Eye Protection System which will be designed to protect Marines' eyes from laser and ballistic threats.
- (U) $ 0.243 Initiated and completed development of new Authorized Dental and Medical Allowance Lists to include new technology insertion and significantly reduce the weight and cube size.

(U) Total $ 1.295

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-7 Operational Sys Development	**0206623M Marine Corps Ground Combat/Supporting Arms Systems**	**C2503 Initial Issue**

(U) FY 2003 Planned Program:

- (U) $ 1.113 Continue modeling and simulation efforts to assist in the engineering and design of new equipment in order to reduce weight and increase compatibility/utility on the battlefield. Additionally, modeling and simulation will help determine the optimal distribution of war-fighting equipment within the rifle squad and aid in configuring expeditionary warfighting capability sets. Conduct analysis on different materials and camouflage patterns in order to reduce visual, infra red, or thermal detection. Additional research and development efforts will investigate/validate the integration of communication and night optic capability with protective headgear.

(U)Total $ 1.113

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	1.403	1.307	
(U) Adjustments from the President's Budget:			
(U) SBIR/STTR Transfer	-0.002		
(U) Execution Adjustment	-0.164		
(U) Minor Affordability Adjustment		-0.012	
(U) Program Adjustment	0.425		
(U) FY 2003 President's Budget:	1.662	1.295	1.113

CHANGE SUMMARY EXPLANATION:
(U) Funding: See Above.
(U) Schedule: Not Applicable.
(U) Technical: Not Applicable.

(U) B. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) PMC Line (BLI#652200) Field Med Equip **		3.369	9.491						

**Forward Resuscitative Surgery System & Digital Radiography are the procurement programs contained within PMC Field Medical Equipment and associated with Initial Issue.

(U) Related RDT&E: Not Applicable.

(U) C. ACQUISITION STRATEGY: * Initial Issue items are all non-ACAT programs and utilize various acquisition strategies. Initial Issue programs leverage heavily off of current developmentsand technology in commercial industry. As a result, government's R&D phase is relatively short. Contracting is performed by either Marine Corps Systems Command ContractingDirectorate or the U.S. Army Natick Research, Development and Engineering Center via Indefinite Delivery/Indefinite Quanity (ID/IQ) contracts. ID/IQ contracts are used to decrease the government risk, allow maximum contract flexibility and capitalize on the savings realized by utilizing Economic Order Quanities.
SHELTERS: The Initial Issue R&D Shelter acquisition strategy is to modify non-developmental Items (NDI) to further meet the requirements of the Marine Corps, to support development of multi-service items through inter-service agreements and to adopt Commercial-Off-the-Shelf (COTS)/NDI Marine Corps specific items.

(U) D. SCHEDULE PROFILE: Not Applicable.

CLASSIFICATION:

Exhibit R-3 Cost Analysis											DATE: **February 2002**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Development**			PROGRAM ELEMENT **0206623M Marine Corps Ground Combat/Supporting Arms Systems**		PROJECT NUMBER AND NAME **C2503 Initial Issue**								
Cost Categories (Tailor to WBS, or Sys/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Dev											0.000	
Ancillary Hardware Dev											0.000	
Systems Engineering											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Development/Tech Insertion	MIPR	USASSCOM	0.980	1.176	3Q/01	0.610	1Q/02	0.261	1Q/03	Continuing	Continuing	
Development/Tech Insertion	FFP	MCSC CTQ	0.314	0.110	3Q/01	0.310	2Q/02	0.517	2Q/03	Continuing	Continuing	
Subtotal Product Dev			1.294	1.286		0.920		0.778		Continuing	Continuing	
Remarks:												

Cost Categories (Tailor to WBS, or System/Iter Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Development Support Equip											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
Subtotal Support											0.000	
Remarks:												

Cost Categories (Tailor to WBS, or System/Iter Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Eval											0.000	
Operational Test & Eval	MIPR	USASSCOM	0.251	0.249	3Q/01	0.253	3Q/02	0.214	2Q/03	Continuing	Continuing	
Tooling											0.000	
Field User Evaluations	FFP	MCSC CTQ	0.342								0.342	
Subtotal T&E			0.593	0.249		0.253		0.214		Continuing	Continuing	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis											DATE: **February 2002**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Development**			PROGRAM ELEMENT **0206623M Marine Corps Ground Combat/Supporting Arms Systems**			PROJECT NUMBER AND NAME **C2503 Initial Issue**							
Cost Categories (Tailor to WBS, or System/Iter Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Contractor Eng Suppt	FFP/O	SVERDRUP	0.100	0.107	1Q/01	0.101	1Q/02	0.101	1Q/03	Continuing	Continuing	
Govt Engineering Suppt											0.000	
Program Mngmnt Suppt											0.000	
Travel	WR	MCSC Travel	0.020	0.020	1Q/01	0.021	1Q/02	0.020	1Q/03	Continuing	Continuing	
Labor (Research Personnel)											0.000	
Overhead											0.000	
Subtotal Management			0.120	0.127		0.122		0.121		Continuing	Continuing	
Remarks:												
Total Cost			2.007	1.662		1.295		1.113		Continuing	Continuing	

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Development**	PROGRAM ELEMENT NUMBER AND NAME **26623M Marine Corps Ground Combat/Supt Arms**				PROJECT NUMBER AND NAME **C2928 HIGH MOBILITY ARTILLERY ROCKET SYSTEM (HIMARS)**				
COST ($ in Millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**16.741**	**10.795**	**11.922**	**7.207**	**3.137**	**0.000**	**0.000**	**0.000**	**49.802**
RDT&E Articles Qty	**2**								

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

HIMARS is a C-130 transportable, wheeled, indirect fire, rocket/missile system capable of firing all rockets and missiles in the current and future Multiple Launch Rocket System Family of Munitions (MFOM). The system includes two Resupply Vehicles (w/MHE Crane) and two Resupply Trailers, and the MFOM. HIMARS will provide the Fleet Marine Force with 24 hour ground-based, responsive General Support/General Support Reinforcing/Reinforcing (GS/GSR/R) indirect fires which accurately engage targets at long range (45+KM) with high volumes of lethal fire under all weather conditions throughout all phases of combat operations ashore. HIMARS is a significant improvement over currently fielded ground fire support systems. During a 24 hour period the system will be expected to conduct multiple moves and multiple fire missions.
HIMARS will satisfy the Marine Corps requirement for an indirect fire system that is responsive, maneuverable, and is capable of engaging targets at long range.

PROGRAM ACCOMPLISHMENTS AND PLANS

FY 2001 Accomplishments:

- (U) $ 7.783 Purchased two HIMARS maturation launchers. (Deliver in FY02)
- (U) $ 2.678 Program Management.
- (U) $ 0.679 Engineering and Manufacturing Development.
- (U) $ 0.260 Rockets, reduced range practice.
- (U) $ 0.719 Multiple Launch Rocket System (MLRS) Joint Program Management/Government Furnished Equipment (GFE) Equip.
- (U) $ 1.584 Launcher and Family of Medium Tactical Vehicles (FMTV) testing/support equip.
- (U) $ 2.054 Purchased Resupply Vehicles & Trailers
- (U) $ 0.984 Training

(U) Total $ 16.741

FY 2002 Planned Program:

- (U) $ 5.521 Engineering and Manufacturing Development. Includes contractor support, USMC R&D effort.
- (U) $ 2.439 Program Management.
- (U) $ 0.426 Support Test and Evaluation Program with Army. Includes contractor support, USMC R&D effort.
- (U) $ 1.240 Systems test using equipment purchased with FY01 Congressional Enhancement.
- (U) $ 0.033 MLRS PMO Program Management.
- (U) $ 0.399 Launcher and Family of Medium Tactical Vehicles (FMTV) contracter support.
- (U) $ 0.260 Launcher and FMTV Annual Repairs.
- (U) $ 0.477 Training.

(U) Total $ 10.795

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-7 Operational Sys Development	**26623M Marine Corps Ground Combat/Supt Arms**	**C2928 HIGH MOBILITY ARTILLERY ROCKET SYSTEM (HIMARS)**

(U) FY 2003 Planned Program:

- (U) $ 7.456 Engineering & Manufacturing Development.
- (U) $ 0.516 Support Test and Evaluation Program with Army.
- (U) $ 2.679 Program Management, including providing programmatic, engineering, logistical support, and travel expenses
- (U) $ 0.033 MLRS PMO Program Management.
- (U) $ 0.399 Launcher and Family of Medium Tactical Vehicles (FMTV) Contractor Support.
- (U) $ 0.260 Launcher and FMTV Annual Repairs.
- (U) $ 0.250 User Evaluation.
- (U) $ 0.329 Training.

(U)Total $ 11.922

PROJECT CHANGE SUMMARY

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	17.141	10.891	
(U) Adjustments from the President's Budget:			
(U) SBIR/STTR Transfer	-0.400		
(U) Execution Adjustment			
(U) Minor Affordability Adjustment			
(U) Program Adjustment		-0.096	
(U) FY 2003 President's Budget:	16.741	10.795	11.922

CHANGE SUMMARY EXPLANATION:
(U) Funding: See Above.
(U) Schedule: Not Applicable.
(U) Technical: Not Applicable.

(U) B. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) PMC, 205001,EIFGSWS (HIMARS)	0.000	0.000	7.869	4.153	4.560	140.503	191.746	0.000	348.831
(U) PMC, 304001,HIMARS ROCKETS	0.000	0.000	0.000	0.000	24.469	112.288	176.077	0.000	312.834

(U) Related RDT&E: Not Applicable.

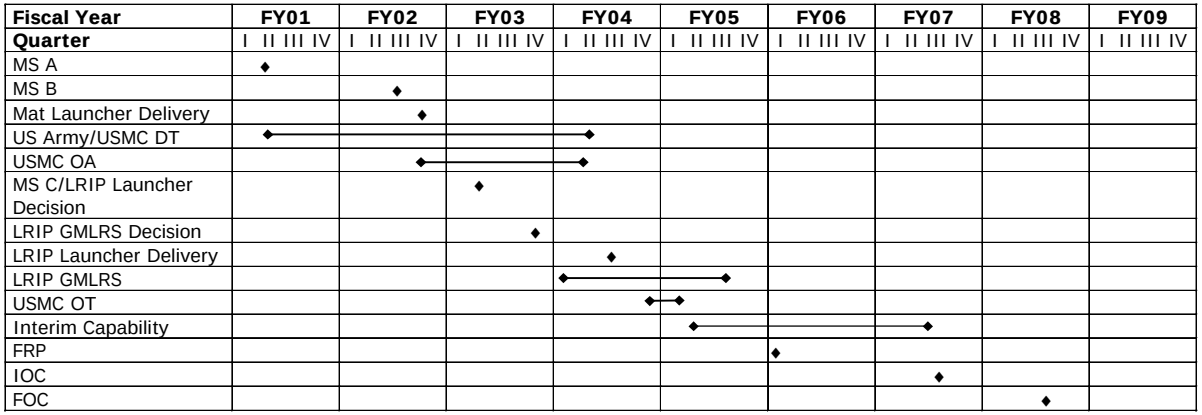
(U) C. ACQUISITION STRATEGY: * An explanation of acquistion, management, and contracting strategies shall be provided for each project.

HIMARS will be a procurement of the Army rocket launcher and rockets currently under development. Program Management efforts will focus on ensuring the Army components are effective and suitable in a Marine Corps environment. Additionally, development of a MTVR truck variant and an associated trailer will be done by the Marine Corps.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-7 Operational Sys Development	**26623M Marine Corps Ground Combat/Supt Arms**	**C2928 HIGH MOBILITY ARTILLERY ROCKET SYSTEM (HIMARS)**

(U) D. SCHEDULE PROFILE:



Program Funding Summary	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) 026623M, RDT&E,N	16.741	10.795	11.922	7.207	3.137	0.000	0.000	0.000	49.802
(U) PMC, 205001, EIFSGWS (HIMARS)	0.000	0.000	7.869	4.153	4.560	140.503	191.746	0.000	348.831
(U) PMC, 304001, HIMARS ROCKETS	0.000	0.000	0.000	0.000	24.469	112.288	176.077	0.000	312.834

CLASSIFICATION:

Exhibit R-3 Cost Analysis						DATE: **February 2002**					
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Development**		PROGRAM ELEMENT **0206623M Marine Corps Ground Combat/Supt Arms**				PROJECT NUMBER AND NAME **C2928 HIGH MOBILITY ARTILLERY ROCKET SYSTEM (HIMARS**					
Cost Categories (Tailor to WBS, or Sys/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Dev	SS/CPAF	Lockheed Martin, Dallas, TX	0.000	10.003	12/20/00	2.058	01/02	4.244	01/04	2.755	19.060	
Primary Hardware Dev	FFP	TACOM, Warren, MI	0.000	0.000		2.521	03/02	0.320	01/04	2.145	4.986	
Ancillary Hardware Dev	MIPR	US Army R&D (MSL),Huntsville,AL	0.000	0.300	01/02/01	0.900	11/01	0.624	01/04	1.500	3.324	
Primary Hardware Dev	SS/CPAF	Oshkosh Truck Corp, Oshkosh,WI	0.000	2.054	07/27/01	0.400	11/01	1.000	01/04	0.000	3.454	
Systems Engineering	WR	NSWC-Carderock,MD	0.000	0.028	02/28/01	0.100	10/01	0.400	01/04	0.000	0.528	
Systems Engineering	WR	NSWC-Dahlgren, VA	0.000	0.311	11/24/00	0.098	10/01	0.700	01/04	0.000	1.109	
Systems Engineering	FFP	John J. McMullen Assocs,Pittsb.,PA	0.000	0.129	04/15/01	0.000		0.300	10/03	0.000	0.429	
Subtotal Product Dev			0.000	12.825		6.077		7.588		6.400	32.890	
Remarks:												
Cost Categories (Tailor to WBS, or System/Iter Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Development Support Equip	WR	MARCORSYSCOM,Quantico, VA	0.000	0.699	02/28/01	2.091	10/02	0.300	10/03	1.820	4.910	
Development Support Equip	WR	MCCDC, Quantico, VA	0.000	0.945	04/30/01	0.000				0.000	0.945	
Program Support	MIPR	US Army-MSL,Huntsville, AL	0.000	0.450	01/02/01	0.133	11/02			0.315	0.898	
Training Development Suppor	FFP	TBD	0.000	0.974	07/27/01	0.360	12/01	0.329	12/03	0.000	1.663	
Integrated Logistics Support	FFP	BAE Systems, Stafford, VA	0.000	0.368	01/31/01	0.000		0.250	10/03	0.000	0.618	
Integrated Logistics Support	CPAF	Lockheed Martin						0.340	10/03		0.340	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Support			0.000	3.436		2.584		1.219		2.135	9.374	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis							DATE: **February 2002**					
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Development**		PROGRAM ELEMENT **0206623M Marine Corps Ground Combat/Supt Arms**					PROJECT NUMBER AND NAME **C2928 HIGH MOBILITY ARTILLERY ROCKET SYSTEM (HIMARS**					
Cost Categories (Tailor to WBS, or System/Iter Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Operational Test & Eval	WR	Cold Region Test Center, Ft Greely,AK		0.000		0.032	11/01	0.400	12/03	0.000	0.432	
Developmental Test & Eval	FFP	KTR SPT TMI		0.000		0.105	12/01			0.054	0.159	
Developmental Test & Eval	WR	Redstone Tech Test Ctr,Huntsville,AL		0.000		0.115	10/01			0.000	0.115	
Developmental Test & Eval	FFP	RAM GEN SPT		0.000		0.032	12/01			0.011	0.043	
Developmental Test & Eval	WR	Aberdeen Proving Grd,Aberdeen,MD		0.063	05/18/01	0.078	11/01	0.400	12/03	0.000	0.541	
Developmental Test & Eval	CPAF	Systems Test - TBD		0.000		1.240	03/02	0.000		0.000	1.240	
Developmental Test & Eval	WR	TACOM, Warren, MI		0.044	06/13/01						0.044	
Developmental Test & Eval	WR	User Evaluation - TBD		0.000		0.000		0.900	12/03	0.250	1.150	
Operational Test & Eval	CPAF	KTR SPT - OT		0.000		0.053	07/02			0.490	0.543	
Operational Test & Eval	TRAVEL	Travel - OT		0.000		0.011	10/01			0.016	0.027	
Operational Test & Eval	WR	OT Test Conduct		0.000		0.000		1.050	12/03	0.660	1.710	
Operational Test & Eval	CPAF	OT Ammo-Lockheed Martin,Dallas,TX		0.000		0.000				0.328	0.328	
Subtotal T&E			0.000	0.107		1.666		2.750		1.809	6.332	
Remarks:												

Cost Categories (Tailor to WBS, or System/Iter Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Program Mngmnt	WR	MCSC, QUANTICO		0.116	2/28/01	0.348	10/02				0.464	
Program Mngmnt	WR	MCCDC, QUANTICO		0.105	4/30/01	0.000					0.105	
Program Mngmnt	MIPR	US ARMY, AL		0.050	1/02/02	0.116	11/01				0.166	
Program Mngmnt	MIPR	FT. STILL, TRNG		0.010	07/27/01	0.004	12/01	0.007	10/03		0.021	
Program Mngmnt	FFP	BAE SYSTEMS		0.092	1/31/01			0.358	10/03		0.450	
											0.000	
Subtotal Management			0.000	0.373		0.468		0.365		0.000	1.206	
Remarks:												

Total Cost				16.741		10.795		11.922		10.344	49.802	

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification						DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**			PROGRAM ELEMENT (PE) NAME AND NO. **026624M Marine Corps Combat Services Support**						
COST ($ in Millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost	**5.670**	**8.408**	**21.041**	**11.052**	**6.753**	**4.222**	**4.384**	**Cont**	**Cont**
C0076 Medium Tactical Vehicle Replacement (MTVR)	**2.925**	**1.993**	**0.994**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**5.912**
C0201 Logistical Vehicle System Replacement (LVSR)	**0.000**	**0.000**	**8.949**	**9.950**	**4.964**	**0.000**	**0.000**	**0.000**	**23.863**
C2316 Combat Services Support Engineering Equipment	**1.572**	**5.842**	**10.259**	**0.299**	**0.227**	**0.000**	**0.000**	**0.000**	**18.199**
C2509 Motor Transport Modernization	**1.173**	**0.254**	**0.508**	**0.464**	**0.468**	**0.472**	**0.576**	**Cont**	**Cont**
C2929 Testing Measuring Diagnostic Equip (TMDE) & SE	**0.000**	**0.319**	**0.331**	**0.339**	**1.094**	**3.750**	**3.808**	**Cont**	**Cont**
Quantity of RDT&E Articles									

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This program element (PE) provides funding for Marine Air-Ground Task Force requirements for Combat Service Support equipment improvement. It will enhance combat breaching capabilities of the ground combat elements, provide potable water from any available raw water source, logistics, maintenance and transportation requirements. It will also determine the reconfiguration of the current Twin Agent Unit firefighting apparatus and provide a portable, highly mobile general-purpose automatic tester designed for use by technicians in the garrison and at the forward edge of the battlefield.

The PE also provides improvements in all areas of Combat Service Support Equipment Vehicles by determining the replacement for the heavy, medium and light fleet vehicles. Alternative Power Sources for Communications Equipment (APSCE) is a suite of devices that provides the commander with the capability to use existing power to operate his communication equipment, computers and peripheral equipment instead of using batteries or fossil fuel generators. The Marine Corps Family of Automatic Test Systems (ATS), formerly TETS, provides automatic testing capability for use by technicians both in garrison and forward edge of Battlefield

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT (PE) NAME AND NO. **026624M Marine Corps Combat Services Support**

B. PROGRAM CHANGE SUMMARY

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	3.876	8.483	
(U) Adjustments from the President's Budget:			
(U) SBIR/STTR Transfer	-0.026		
(U) Execution Adjustment	-0.051		
(U) Minor Affordability Adjustment		-0.075	
(U) Program Adjustment	1.871		
(U) FY 2003 Presidnet's Budget:	5.670	8.408	21.041

CHANGE SUMMARY EXPLANATION:

(U) Funding: See Above.

(U) Schedule: Not Applicable.

(U) Technical: Not Applicable.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206624M Marine Corps Combat Services Support**				PROJECT NUMBER AND NAME **C0076 Medium Tactical Vehicle Replacement (MTVR)**				
COST ($ in Millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**2.925**	**1.993**	**0.994**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**32.905**
RDT&E Articles Qty									

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Medium Tactical Vehicle Replacement (MTVR) Program will determine the replacement vehicle for the Medium 5-ton fleet. This project will increase mobility, maintainability, and reliability for the medium fleet.

PROGRAM ACCOMPLISHMENTS AND PLANS

FY 2001 Accomplishments

- (U) $ 2.925 Begin MTVR variant prototype developmental testing.

(U) Total $ 2.925

FY 2002 Planned Program

- (U) $ 1.993 Complete MTVR variant prototype development.

(U) Total $ 1.993

FY 2003 Planned Program

- (U) $ 0.994 Complete MTVR variant prototype operational testing.

(U) Total $ 0.994

(U) Project Change Summary	FY2001	FY2002	FY2003
(U) FY2002 President's Budget	1.018	2.011	
(U) Adjustments from the President's Budget:			
(U) SBIR/STTR Transfer			
(U) Execution Adjustment			
(U) Minor Affordability Adjustment			
(U) Program Adjustment	1.907	-0.018	
(U) FY 2003 President's Budget:	2.925	1.993	0.994

CHANGE SUMMARY EXPLANATION:

(U) Funding: Additional funds in FY01 and FY03 are for MTVR variant development and testing.

(U) Schedule: Not Applicable.

(U) Technical: Not Applicable.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206624M Marine Corps Combat Services Support**	PROJECT NUMBER AND NAME **C0076 Medium Tactical Vehicle Replacement (MTVR)**

(U) B. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) PMC Line (BLI# 508800) MTVR	320.826	309.699	347.578	4.722	0.000	0.000	0.000	0.000	1190.6

(U) Related RDT&E:

(U) PE 0206623M Marine Corps Ground Combat Supporting Arms Systems
(U) PE 0603640M Marine Corps Advanced Technology Demonstration
(U) PE 0604804A Logistics and Engineering Equip/Engr Development
(U) PE 0206313M Marine Corps Communications

(U) C. ACQUISITION STRATEGY:

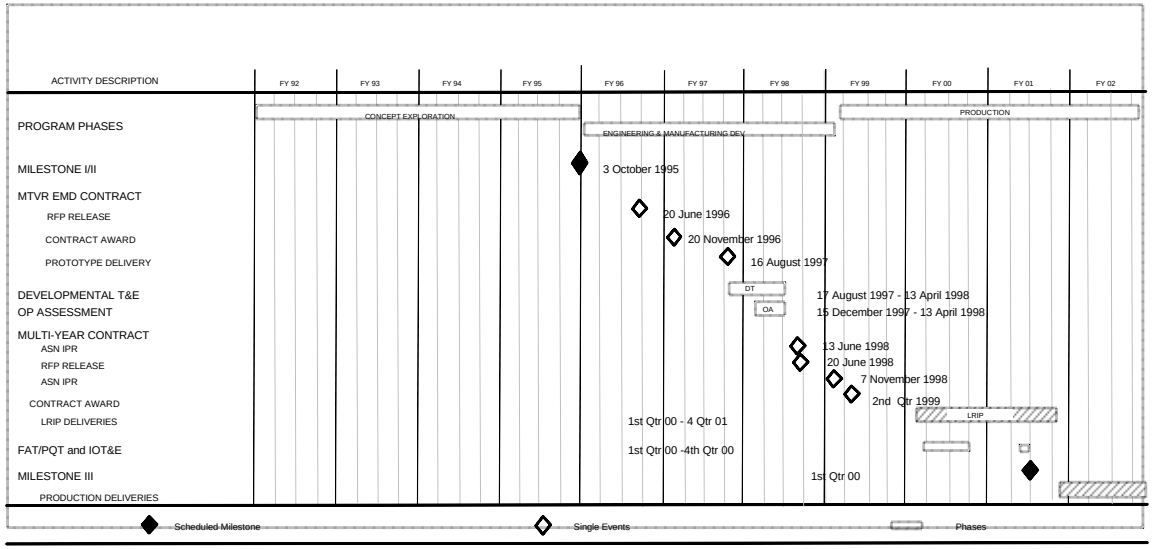
The Medium Tactical Vehicle Replacement (MTVR) production program is a multi-year, fixed price contract with an economic price adjustment. The program has both an Acquisition Strategy and an Acquisition Plan that addresses the total program fielding. The contractor will deliver 5,666 vehicles on the base contract, with 2,502 vehicles included as options. There are four MTVR configurations, which include standard cargo, extra long wheel base cargo, dump and wrecker. The Acquisition Strategy includes Contractor Logistics Support (CLS) after fielding.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206624M Marine Corps Combat Services Support**	PROJECT NUMBER AND NAME **C0076 Medium Tactical Vehicle Replacement (MTVR)**

(U) D. SCHEDULE PROFILE:

MEDIUM TACTICAL VEHICLE REPLACEMENT
SCHEDULE



Program Funding Summary	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(APPN, BLI #, NOMEN)									
(U) RDT&E,N	2.925	1.993	0.994					0.000	32.905
(U) PMC, BLI# 508800 MTVR	320.826	309.699	347.578	4.722				0.000	1190.600

CLASSIFICATION:

Exhibit R-3 Cost Analysis						DATE: **February 2002**							
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**			PROGRAM ELEMENT **0206624M Marine Corps Combat Services S**			PROJECT NUMBER AND NAME **C0076 Medium Tactical Veh Replacement (MTVR)**							
Cost Categories (Tailor to WBS, or Sys/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Dev											0.000	
Ancillary Hardware Dev											0.000	
Systems Engineering											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Product development	MIPR	TACOM, Michigan	17.152							0.000	17.152	17.152
Subtotal Product Dev			17.152	0.000		0.000				Continuing	Continuing	
Remarks:												
Cost Categories (Tailor to WBS, or System/Iter Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Development Support Equip											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
Development Support	MIPR	TACOM, Michigan	2.891							0.000	2.891	2.891
Management Support	RCP	MKI	0.502							0.000	0.502	0.502
Program Support	WR	MCSC, Quantico, VA	0.331							0.000	0.331	0.331
Subtotal Support			3.724	0.000		0.000						
Remarks:												
Cost Categories (Tailor to WBS, or System/Iter Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Eval											0.000	
Operational Test & Eval											0.000	
Tooling											0.000	
Developmental Test & Eval	MIPR	TACOM, Michigan	5.198	2.418	01/01	0.000	11/01				7.616	7.616
Operational Test & Eval	WR	MCOTEA, Quantico	0.919	0.000		0.000		0.700	11/02		1.619	1.619
Developmental Test & Eval	RCP	MCSC, Quantico (Oshkosh Truck Corp)				0.920	11/01				0.920	0.920
Subtotal T&E			6.117	2.418		0.920		0.700			10.155	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis											DATE: **February 2002**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**			PROGRAM ELEMENT **0206624M Marine Corps Combat Services S**		PROJECT NUMBER AND NAME **C0076 Medium Tactical Veh Replacement (MTVR)**								
Cost Categories (Tailor to WBS, or System/Iter Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Contractor Eng Suppt											0.000	
Govt Engineering Suppt											0.000	
Program Mngmnt Suppt	WR	MCSC Quantico		0.507	11/00	1.073	10/01	0.294	10/02		1.874	1.874
Travel											0.000	
Labor (Research Personnel)											0.000	
Overhead											0.000	
Subtotal Management			0.000	0.507		1.073		0.294		0.000	1.874	
Remarks:												
Total Cost			26.993	2.925		1.993		0.994		0.000	32.905	32.905

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206624M Marine Corps Combat Services Support**				PROJECT NUMBER AND NAME **C0201 Logistical Vehicle System Replacement (LVSR)**				
COST ($ in Millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**0.000**	**0.000**	**8.949**	**9.950**	**4.964**	**0.000**	**0.000**	**0.000**	**23.863**
RDT&E Articles Qty									

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Logistical Vehicle System Replacement (LVSR) program will determine the replacement vehicle for the Logistical Vehicle System (LVS). This vehicle will increase mobility, maintainability, and reliability for the heavy fleet, while increasing off-road payload. The LVSR will consis of a common Front Power Unit (FPU) that can be coupled to one of a variety of powered Rear Body Units (RBUs) to form a complete system. These systems, referred to as the cargo, fifth wheel and wrecker variants shall accomplish the heavy tactical vehicle fleet missions of transporting bulk fuel and water, ammunition, breakbulk/palletized cargo, tactical, bridging and standardized containers. The LVSR is also used for transporting heavy equipment and conducting heavy wrecker recovery. The LVSR will be more mobile, carry a heavier off-road payload, and will be more reliable than the current LVS, thereby reducing the operating costs for the Fleet Operating Forces.

PROGRAM ACCOMPLISHMENTS AND PLANS

FY 2001 Accomplishments: Not Applicable.

FY 2002 Planned Program: Not Applicable.

FY 2003 Planned Program:

- (U) $ 5.849 LVSR: Procure 16 prototypes, 8 MK48s FPUs, 3 MK18A1 Cargo, 3 Wrecker RBUs, and 2 fifth wheel RBUs for testing.
- (U) $ 1.012 LVSR: Technical Manual preparation.
- (U) $ 1.031 LVSR: Provide Engineering and Technical support.
- (U) $ 0.304 LVSR: Initiate Vehicle Testing.
- (U) $ 0.053 LVSR: Provide program management and travel support.
- (U) $ 0.700 LVSR: Source selection.

(U) Total $ 8.949

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206624M Marine Corps Combat Services Support**	PROJECT NUMBER AND NAME **C0201 Logistical Vehicle System Replacement (LVSR)**

(U) Project Change Summary	FY2001	FY2002	FY2003
(U) FY2002 President's Budget	0.007	0.000	
(U) Adjustments from the President's Budget:			
(U) SBIR/STTR Transfer			
(U) Execution Adjustment			
(U) Minor Affordability Adjustment			
(U) Program Adjustment	-0.007	0.000	
(U) FY 2003 President's Budget:	0.000	0.000	8.949

CHANGE SUMMARY EXPLANATION:
(U) Funding: See Above.
(U) Schedule: Not Applicable.
(U) Technical: Not Applicable.

(U) B. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) PMC Line (BLI# 509300) LVSR	0.000	0.000	0.000	31.749	63.401	123.535	162.760	0.000	381.445

(U) Related RDT&E:

(U) PE 0206623M Marine Corps Ground Combat Supporting Arms Systems
(U) PE 0603640M Marine Corps Advanced Technology Demonstration
(U) PE 0604804A Logistics and Engineering Equip/Engr Development
(U) PE 0206313M Marine Corps Communications

(U) C. ACQUISITION STRATEGY:

The Logistics Vehicle System Replacement consists of a common Front Power Unit (FPU) that can be coupled to one of a variety of powered Rear Body Units (RBUSs) to form a complete system. These systems, referred to as the cargo, fifth wheel, and wrecker variants, shall accomplish the heavy tactical vehicle fleet missions of transporting bulk fuel and water, ammunition, breakbulk/palletized cargo, tactical bridging, and standardized containers. The LVSR is also used for transporting heavy equipment to include combat vehicles, and for conducting heavy wrecker recovery. The LVSR will be more mobile, carry a heavier payload both on and off road, and will be much more reliable than the current LVS fleet thereby reducing the operating costs for the FMF. The LVSR program is a three year R&D effort to develop production models to replace the current LVS.

(U) D. SCHEDULE PROFILE: Not Applicable.

CLASSIFICATION:

Exhibit R-3 Cost Analysis						DATE: **February 2002**						
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**		PROGRAM ELEMENT **0206624M Marine Corps Combat Services Spt**				PROJECT NUMBER AND NAME **C0201 Logistical Vehicle System Replacement (LVSR)**						
Cost Categories (Tailor to WBS, or Sys/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Source Selection	RCP	MCSC Quantico	0.000	0.000		0.000		0.700	07/03	0.000	0.700	0.700
Prototypes	RCP	TBD	0.000	0.000		0.000		5.849	12/02	8.350	14.199	14.199
Subtotal Product Dev			0.000	0.000		0.000		6.549		8.350	14.899	
Remarks:												
Cost Categories (Tailor to WBS, or System/Iter Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Technical Manuals	RCP	TBD	0.000	0.000		0.000		1.012	05/03	0.000	1.012	1.012
Subtotal Support			0.000	0.000		0.000		1.012		0.000	1.012	
Remarks:												
Cost Categories (Tailor to WBS, or System/Iter Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Eval	TBD	TBD	0.000	0.000		0.000		0.304	03/03	0.000	0.304	0.304
Subtotal T&E			0.000	0.000		0.000		0.304		0.000	0.304	
Remarks:												
Cost Categories (Tailor to WBS, or System/Iter Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Contractor Suppt	RCP	MCSC Quantico	0.000	0.000		0.000		0.461	10/02	4.000	4.461	4.461
Engineering Suppt	WR	MCSC Quantico	0.000	0.000		0.000		0.570	10/02	2.454	3.024	3.024
Program Mngmnt Suppt	WR	MCSC Quantico	0.000	0.000		0.000		0.053	10/02	0.110	0.163	0.163
Subtotal Management						0.000		1.084		6.564	7.648	
Remarks:												
Total Cost				0.000		0.000		8.949		14.914	23.863	

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME				PROJECT NUMBER AND NAME				
RDT&E, N /BA-7 Operational Sys Dev	**0206624M Marine Corps Combat Services Support**				**C2316 Combat Services Support Engineering Equipment**				
COST ($ in Millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**1.572**	**5.842**	**10.259**	**0.299**	**0.227**	**0.000**	**0.000**	**0.000**	**18.199**
RDT&E Articles Qty			**4**						

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

A. This project includes improvements in all areas of Combat Service Support Equipment. The Assault Breacher Vehicle (ABV) will be a fully tracked, armored vehicle capable of keeping pace with the maneuver force. It will breach minefields with Marine Corps integrated items to include a full width mine plow, two line charges, remote control kit, weapons station and ground marking system. The ABV is a fully tracked, heavy protection level combat system used to enhance the combat breaching capabilities of the ground combat elements. The overall system is integrated on the ABRAMS tank chassis to provide commonality with the tank fleet while providing the latest technology in direct fire armor protection. It will provide capabilities to breach minefields, neutralize obstacles, and demolish berms.

The 1500 Reverse Osmosis Water Purification Unit (1500-ROWPU) is capable of providing potable water from any available raw water source. The 1500-ROWPU is "state-of-the-art" technology producing 1,200/1,500 gallons per hour (GPH). This system will replace the aging 600 GPH ROWPUs at a 2 old systems to 1 enhanced system ratio. The 1500-ROWPU will reduce logistics, maintenance, and transportation requirements allowing significant potential cost avoidance in out year support costs. The 1500-ROWPU is a joint Marine Corps program with the Army as the lead service.

The Marine Corps Family of Automatic Test Systems (ATS), formerly known as Third Echelon Test Set (TETS), provides automatic testing capability for use by technicians both in garrison and at the forward edge of the battlefield. Funding for ATS beyond FY2001 is found in Project C2929 of this Program Element.

PROGRAM ACCOMPLISHMENTS AND PLANS

FY 2001 Accomplishments

- (U) $ 0.233 1500-ROWPU: Tested and evaluated ancillary equipment to include membrane cleaning and preservation system and ocean intake structures.
- (U) $ 0.204 ATS: Initiated development of new Revision D technology for Simplified Test Equipment for Internal Combustion Engines (STE ICE) replacement.
- (U) $ 0.397 ABV: Program management support/travel.
- (U) $ 0.738 ABV: Continued systems engineering/integration, trade studies, built demonstrator and conducted proof of principle testing.

(U) Total $ 1.572

FY 2002 Planned Program

- (U) $ 1.782 ABV: Program management support, travel, technical manuals and drawings. Funding in support and management includes gaining safety certification from the Weapons Systems Safety Explosive Review Board (WSSERB).
- (U) $ 1.388 ABV: Begin developmental testing.
- (U) $ 2.672 ABV: Integration of line charges, ground-marking system, weapons station, remote control kit.

(U) Total $ 5.842

(U) FY 2003 Planned Program:

- (U) $ 7.085 ABV: Complete integration of line charges, ground-marking system, weapons station, remote control kit. Develop 3 prototype vehicles for continued R&D in preparation for OT&E. One demonstrator will be used as a configuration management control vehicle for the three prototypes development.
- (U) $ 0.980 ABV: Program management support, travel, technical manuals and drawings.
- (U) $ 2.194 ABV: Operational testing, live fire testing, and RAM testing of the ABV.

(U)Total $ 10.259

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-7 Operational Sys Dev	**0206624M Marine Corps Combat Services Support**	**C2316 Combat Services Support Engineering Equipment**

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	1.558	5.894	
(U) Adjustments from the President's Budget:			
(U) SBIR/STTR Transfer			
(U) Execution Adjustment	-0.051		
(U) Minor Affordability Adjustment		-0.052	
(U) Program Adjustment	0.065		
(U) FY 2003 President's Budget:	1.572	5.842	10.259

CHANGE SUMMARY EXPLANATION:

(U) Funding: See Above.

(U) Schedule: Not Applicable.

(U) Technical: Not Applicable.

(U) B. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) PMC Line (BLI# 627400) 1500 ROWPU		5.613	8.783	25.610	8.208	13.856	10.804	Continuing	Continuing
(U) PMC Line (BLI# 440200) TETS	4.600	0.608	0.894					0.000	6.102
(U) PMC Line (BLI# 613300) ABV				3.878	60.943	59.872		0.000	124.693

(U) Related RDT&E:

(U) PE 0206623M Marine Corps Ground Combat Supporting Arms Systems

(U) PE 0603640M Marine Corps Advanced Technology Demonstration

(U) PE 0604804A Logistics and Engineering Equip/Engr Development

(U) PE 0206313M Marine Corps Communications

(U) C. ACQUISITION STRATEGY:

ATS: The ATS program will determine the replacement for STE ICE and identify technology insertions that will enable automatic test systems to meet weapon system testing requirements. The program will be managed by PM Test, Measurement and Diagnostic Equipment (TMDE) with engineering support from the Automatic Test Equipment Program (ATEP), Albany, GA. Systems Engineering support and product development for the STE ICE replacement will come from Army Research, Development and Engineering Center (ARDEC), Huntsville, AL., through use of a MIPR.

ABV: SYSTEM DEVELOPMENT & DEMONSTRATION PHASE: Conduct modeling to support vehicle platform choice and trade studies for mine plows. Upon program initiation build Demonstrator vehicle. Modeling applications to support Analysis of Alternatives/Testing & Evaluation Alternatives (AOA/TEA). Contract with Anniston Depot/General Dynamics Land Systems (GDLS) to integrate full width mine plow to M1A1. Conduct plow test on M1A1 tank with full width mine plow. Conduct AOA/TEA. Conduct trade study (examining capabilities and cost to down select).

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-7 Operational Sys Dev	**0206624M Marine Corps Combat Services Support**	**C2316 Combat Services Support Engineering Equipment**

PROGRAM DEFINITION AND RISK REDUCTION/ENGINEERING & MANUFACTURING DEVELOPMENT PHASE: Integrate line charges to M1A1 (if M1A1 is chosen following down select). Integrate remote control unit and Ground Marking System. Conduct plow testing against mines and obstacles. LRIP decision. Develop 3 prototype vehicles. Conduct IOT&E, RAM and live mine test.

PRODUCTION, FIELDING/DEPLOYMENT & OPERATIONAL SUPPORT PHASE: Fixed price contract, provide platform as Government Furnished Equipment (GFE). Initial Operational Capability (IOC) (FY05); Full Operational Capability (FOC) (FY06).

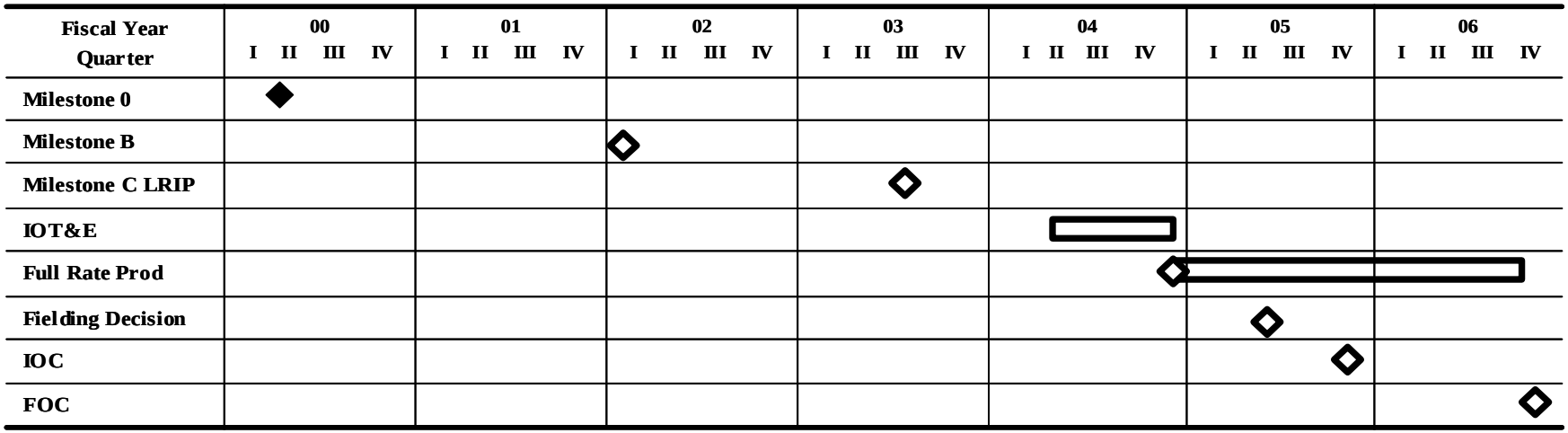
1500-ROWPU: Joint US Army/US Marine Corps program (US Army lead). Adopted US Army Operational Requirements Document (ORD) with USMC Organization & Operations (O&O). Integrated product and process management. Prototype hardware development using Advanced Technology and Mature Design. Continue to monitor Army Engineering and Manufacturing Development (EMD) progress. Conduct USMC testing during Initial Operational Testing & Evaluation (IOT&E).

SCHEDULE: Milestone B - (Oct 01-Apr 02); Milestone C - (Jul 03-Jan 04); OT&E - (Mar 04-Sep 04); Full Rate Production - (Sep 04-Mar 05); IOC - (Sep 05-Mar 05); FOC - (Sep 06-Mar 07).

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-7 Operational Sys Dev	**0206624M Marine Corps Combat Services Support**	**C2316 Combat Services Support Engineering Equipment**

(U) D. SCHEDULE PROFILE:



Program Funding Summary	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(APPN, BLI #, NOMEN)									
(U) RDT&E,N	1.135	5.842	10.259	0.299	0.227			0.000	17.762
(U) PMC, BLI# 613300 ABV				3.878	60.943	59.872		0.000	124.693

CLASSIFICATION:

Exhibit R-3 Cost Analysis			DATE: **February 2002**									
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**		PROGRAM ELEMENT **0206624M Marine Corps Combat Services Spt**			PROJECT NUMBER AND NAME **C2316 Combat Services Support Engineering Equip**							
Cost Categories (Tailor to WBS, or Sys/Item Requirements)	**Contract Method & Type**	**Performing Activity & Location**	**Total PY s Cost**	**FY 01 Cost**	**FY 01 Award Date**	**FY 02 Cost**	**FY 02 Award Date**	**FY 03 Cost**	**FY 03 Award Date**	**Cost to Complete**	**Total Cost**	**Target Value of Contract**
Primary Hardware Dev											0.000	
Ancillary Hardware Dev											0.000	
Systems Engineering											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Systems Engineering	MIPR	TACOM, Michigan	3.271	0.302		2.672		6.870		0.000	13.115	13.816
Systems Engineering	Various	Various	0.288	0.557				0.445		0.000	1.290	0.288
Systems Engineering	MIPR	NSWC, Crane, IN		0.120				0.215		0.000	0.335	0.335
Subtotal Product Dev			**3.559**	**0.979**		**2.672**		**7.530**		**0.000**	**14.740**	
Remarks:												

Cost Categories (Tailor to WBS, or System/Ite Requirements)	**Contract Method & Type**	**Performing Activity & Location**	**Total PY s Cost**	**FY 01 Cost**	**FY 01 Award Date**	**FY 02 Cost**	**FY 02 Award Date**	**FY 03 Cost**	**FY 03 Award Date**	**Cost to Complete**	**Total Cost**	**Target Value of Contract**
Development Support Equip											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
Program Support	RCP	MKI/SVERDRUP	0.574	0.310	12/00	0.200	12/01	0.350	12/02	0.301	1.735	1.393
Program Managem't	RCP	MCSC, Quantico, VA	0.461	0.050	02/01	0.982	12/01	0.185	12/02	0.225	1.903	1.828
Subtotal Support			**1.035**	**0.360**		**1.182**		**0.535**		**0.526**	**3.638**	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis			DATE: **February 2002**									
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**		PROGRAM ELEMENT **0206624M Marine Corps Combat Services Spt**			PROJECT NUMBER AND NAME **C2316 Combat Services Support Engineering Equip**							
Cost Categories (Tailor to WBS, or System/It Requirements)	**Contract Method & Type**	**Performing Activity & Location**	**Total PY s Cost**	**FY 01 Cost**	**FY 01 Award Date**	**FY 02 Cost**	**FY 02 Award Date**	**FY 03 Cost**	**FY 03 Award Date**	**Cost to Complete**	**Total Cost**	**Target Value of Contract**
Developmental Test & Eval				0.233							0.233	
Operational Test & Eval											0.000	
Tooling											0.000	
TEST	MIPR	TACOM	0.295			1.388		0.550		0.000	2.233	2.285
TEST	WR	MCOTEA, Quantico, VA						0.750		0.000	0.750	0.750
TEST	MIPR	APG, MD	0.160			0.600		0.894		0.000	1.654	1.096
Subtotal T&E			**0.455**	**0.233**		**1.988**		**2.194**		**0.000**	**4.870**	
Remarks:												
Cost Categories (Tailor to WBS, or System/It Requirements)	**Contract Method & Type**	**Performing Activity & Location**	**Total PY s Cost**	**FY 01 Cost**	**FY 01 Award Date**	**FY 02 Cost**	**FY 02 Award Date**	**FY 03 Cost**	**FY 03 Award Date**	**Cost to Complete**	**Total Cost**	**Target Value of Contract**
Contractor Eng Suppt											0.000	
Govt Engineering Suppt											0.000	
Program Mngmnt Suppt											0.000	
Travel											0.000	
Labor (Research Personnel)											0.000	
Overhead											0.000	
Subtotal Management			0.000	0.000		0.000				0.000	0.000	
Remarks:												
Total Cost			**5.049**	**1.572**		**5.842**		**10.259**		**0.526**	**23.248**	

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206624M Marine Corps Combat Services Support**				PROJECT NUMBER AND NAME **C2509 Motor Transport Systems**				
COST ($ in Millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**1.173**	**0.254**	**0.508**	**0.464**	**0.468**	**0.472**	**0.576**	**Cont**	**Cont**
RDT&E Articles Qty									

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Marine Corps Tactical Transportation Program manages procurement and life cycle sustainment for more than 40,000 principle end items divided among four fleets: Light Fleet, Medium Fleet, Heavy Fleet, and Special Fleet. A sustained effort is maintained in the Marine Corps for development and testing in support of fleet Service Life Extension Program (SLEP) initiatives, vehicle quality deficiency resolutions, safety initiatives, environmental/state transportation mandated vehicle changes, and system component refresh modernization efforts. Given transportation asset operational availability declines at a steady rate over time, Service Life Extension Programs (SLEP), Fleet overhauls, and enhanced depot level modernization are essential in maintaining a viable transportation capability in the Marine Corps Operating Forces. This project line allows for a consolidated and prioritized approach to USMC modernization and SLEP of transportation assets. It provides a bridge for technology insertion and transition efforts to the Marine Corps from Advanced Technology Demonstrations/Advanced Concept Technology Demonstrations (ATDs and ACTDs), Warfighting Experimentation, and outputs from Industry/DoD and foreign cooperative research efforts in support of Marine Corps tactical vehicle fleet sustainment.

Motor Transportation Modernization program line specifically develops Marine Corps unique improvements/modernizations to fielded transportation systems and supports monitoring the commercial automotive industrial base for technology insertions to increase Reliability Availablity and Maintainability-Durability (RAM-D), reduce total ownership costs, resolve unplanned safety hazards, and monitor/implement emerging state and federal transportation/environmental regulations as required. This is a sustained program line for "level of effort" programs. Funding will focus on streamlined acquisitions of Commercial-Off-the-Shelf/Non-Developmental Items (COTS/NDI) that can be identified, integrated, and tested in a short amount of time. Successful modifications/modernizations and tests are intended for follow-on procurement and incorporation into existing system component upgrades, SLEPs, or rapid COTS/NDI fielding for the Fleet Operating Forces.

PROGRAM ACCOMPLISHMENTS AND PLANS

FY 2001 Program Accomplishments

- (U) $ 0.058 MTM: Program Management and travel in support of Transportation Systems modifications, COTS/NDI modernizations.
- (U) $ 0.297 MTM: Continued testing, integration, evaluation of Transportation Systems modifications.
- (U) $ 0.061 LVS: Program support, management, and travel
- (U) $ 0.300 LVS: Developed kits/platforms for Transportation Systems modifications, COTS/NDI modernizations, and SLEP.
- (U) $ 0.457 LVS: Continued testing, integration and evaluation on Transportation Systems modifications, COTS/NDI modernizations, and SLEP.

(U) Total $ 1.173

FY 2002 Planned Program:

- (U) $ 0.038 MTM: Continue program Management and travel in support of Transportation Systems modifications, COTS/NDI modernizations.
- (U) $ 0.216 MTM: Continue testing, intergration, evaluation of Transportation Systems modifications.

(U) Total $ 0.254

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-7 Operational Sys Dev	**0206624M Marine Corps Combat Services Support**	**C2509 Motor Transport Systems**

(U) FY 2003 Planned Program:

- (U) $ 0.072 MTM: Continue program Management and Travel in support of Transportation Systems modifications, COTS/NDI modernizations.
- (U) $ 0.436 MTM: Continue testing, integration, evaluation of Transportation Systems modifications

(U) Total $ 0.508

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	**1.293**	**0.256**	
(U) Adjustments from the President's Budget:			
(U) SBIR/STTR Transfer	-0.026		
(U) Execution Adjustment			
(U) Minor Affordability Adjustment		-0.002	
(U) Program Adjustment	-0.094		
(U) FY 2003 President's Budget:	**1.173**	**0.254**	**0.508**

CHANGE SUMMARY EXPLANATION:
(U) Funding: See Above
(U) Schedule: Not Applicable.
(U) Technical: Not Applicable.

(U) B. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) PMC (BLI# 523000) < $5M (MT-MOD)	10.840	1.224	2.221	2.979	3.329	3.414	3.946	Continuing	Continuing
(U) PMC (BLI# 509300) LVSR	0.000	0.000	0.000	31.749	63.401	123.535	162.760	0.000	381.445

(U) Related RDT&E: Not Applicable.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206624M Marine Corps Combat Services Support**	PROJECT NUMBER AND NAME **C2509 Motor Transport Systems**

(U) C. ACQUISITION STRATEGY: The **MTM** program is a sustained program line for "level of effort" programs. Funding will focus on streamlined acquisitions of Commercial-Off-The-Shelf Non-Developmental Items (COTS/NDI) that can be identified, integrated, and tested in a short amount of time. Successful modifications/modernizations and tests are intended for follow-on procurement and incorporation into existing system component upgrades, SLEPs, or rapid COTS/NDI fielding for the Fleet Marine Force (FMF).

(U) D. SCHEDULE PROFILE: Not Applicable.

CLASSIFICATION:

Exhibit R-3 Cost Analysis			DATE: February 2002									
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**		PROGRAM ELEMENT **0206624M Marine Corps Combat Services Spt**				PROJECT NUMBER AND NAME **C2509 Motor Transportation Systems**						
Cost Categories (Tailor to WBS, or Sys/Item Requirements)	**Contract Method & Type**	**Performing Activity & Location**	**Total PY s Cost**	**FY 01 Cost**	**FY 01 Award Date**	**FY 02 Cost**	**FY 02 Award Date**	**FY 03 Cost**	**FY 03 Award Date**	**Cost to Complete**	**Total Cost**	**Target Value of Contract**
Develop Kits (LVS)	RCP	NSWC Carderock (NATC)		0.300	02/01	0.000		0.000		0.000	0.300	
Subtotal Product Dev				**0.300**		**0.000**		**0.000**		**0.000**	**0.300**	
Remarks:												
Cost Categories (Tailor to WBS, or System/Ite Requirements)	**Contract Method & Type**	**Performing Activity & Location**	**Total PY s Cost**	**FY 01 Cost**	**FY 01 Award Date**	**FY 02 Cost**	**FY 02 Award Date**	**FY 03 Cost**	**FY 03 Award Date**	**Cost to Complete**	**Total Cost**	**Target Value of Contract**
Subtotal Support				**0.000**		**0.000**		**0.000**		**0.000**	**0.000**	
Remarks:												
Cost Categories (Tailor to WBS, or System/Ite Requirements)	**Contract Method & Type**	**Performing Activity & Location**	**Total PY s Cost**	**FY 01 Cost**	**FY 01 Award Date**	**FY 02 Cost**	**FY 02 Award Date**	**FY 03 Cost**	**FY 03 Award Date**	**Cost to Complete**	**Total Cost**	**Target Value of Contract**
LVS LCCE	RCP	MKI Systems	0.000	0.146	02/01	0.000		0.000		0.000		
LVS TWV Study	RCP	Computer Techologies	0.000	0.311	03/01	0.000		0.000		0.000		
Test & Eval (MTM)			0.000	0.297		0.218		0.463	12/02	Continuing	Continuing	
Subtotal T&E				**0.754**		**0.218**		**0.463**		**Continuing**	**Continuing**	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis							DATE: **February 2002**					
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA 7 Operational Sys Dev**		PROGRAM ELEMENT **0206624M Marine Corps Combat Services Spt**					PROJECT NUMBER AND NAME **C2509 Motor Transportation Systems**					
Cost Categories (Tailor to WBS, or System/Ite Requirements)	**Contract Method & Type**	**Performing Activity & Location**	**Total PY s Cost**	**FY 01 Cost**	**FY 01 Award Date**	**FY 02 Cost**	**FY 02 Award Date**	**FY 03 Cost**	**FY 03 Award Date**	**Cost to Complete**	**Total Cost**	**Target Value of Contract**
Travel (MTM)	WR	MCSC Quantico	0.000	0.058		0.036		0.045	10/02	Continuing	Continuing	
Prgm Spt, Mgt, Tvl (LVS)	WR	MCSC Quantico	0.000	0.061		0.000		0.000		0.000	0.000	
Subtotal Management				**0.119**		**0.036**		**0.045**		**Continuing**	**Continuing**	
Remarks:												
Total Cost				**1.173**		**0.254**		**0.508**		**Continuing**	**Continuing**	

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N /BA-7 Operational Sys Dev**	PROGRAM ELEMENT NUMBER AND NAME **0206624M Marine Corps Combat Services Support**			PROJECT NUMBER AND NAME **C2929 Testing Measuring Diagnostic Equip (TMDE) & SE**					
COST ($ in Millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**0.000**	**0.319**	**0.331**	**0.339**	**1.094**	**3.750**	**3.808**	**Cont**	**Cont**
RDT&E Articles Qty									

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Alternative Power Sources for Communications Equipment (APSCE) is a suite of devices that provides the commander with the capability to use existing power to operate his communication equipment, computers and peripheral equipment instead of using batteries or fossil fuel generators.

The Marine Corps Family of Automatic Test Systems (ATS), formerly TETS, provides automatic testing capability for use by technicians both in garrison and forward edge of Battlefield.

PROGRAM ACCOMPLISHMENTS AND PLANS

(U) FY 2001 Accomplishments: ATS funded in project C2316 in this PE.

(U) FY 2002 Planned Program

- (U) $ 0.119 APSCE: Provide for research, evaluation, test and selection of alternative power source products for the APSCE suite of equipment.
- (U) $ 0.200 ATS: Continue development of new technology testing applications in support of emerging weapon systems.

(U) Total $ 0.319

(U) FY 2003 Planned Program:

- (U) $ 0.123 APSCE: Provide for research, evaluation, test and selection of alternative power source products for the APSCE suite of equipment.
- (U) $ 0.208 ATS: Continue development of new technology testing applications in support of emerging weapon systems.

(U)Total $ 0.331

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-7 Operational Sys Dev	**0206624M Marine Corps Combat Services Support**	**C2929 Testing Measuring Diagnostic Equip (TMDE) & SE**

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	0.000	0.322	
(U) Adjustments from the President's Budget:			
(U) SBIR/STTR Transfer			
(U) Execution Adjustment			
(U) Minor Affordability Adjustment		-0.003	
(U) Program Adjustment			
(U) FY 2003 President's Budget:	0.000	0.319	0.331

CHANGE SUMMARY EXPLANATION:
(U) Funding: See Above.
(U) Schedule: Not Applicable.
(U) Technical: Not Applicable.

(U) B. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) PMC Line (BLI# 462000) APSCE		4.529	4.636	4.715	4.820	3.538	3.924	Continuing	Continuing
(U) PMC Line (BLI# 440200 ATE	4.600	0.608	0.894					0.000	34.033

(U) Related RDT&E:
(U) PE 0206624M Marine Corps Ground Supporting Arms Systems, Project C2316

(U) C. ACQUISITION STRATEGY: All work is being done in-house at MCLB, Albany, NSWC, Seal Beach, CA and MCAGCC, 29 Palms, CA.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-7 Operational Sys Dev	**0206624M Marine Corps Combat Services Support**	**C2929 Testing Measuring Diagnostic Equip (TMDE) & SE**

(U) D. SCHEDULE PROFILE:

APSCE MILESTONE SCHEDULE					
PHASE	FY 99	FY 00	FY 01	FY 02	FY 03
MILESTONE 0	▲				
MILESTONE C				▲	
PRODUCTION CONTRACT AWARD				▲	
PRODUCTION					▲
IOC					▲

Program Funding Summary	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(APPN, BLI #, NOMEN)									
(U) RDT&E,N		0.119	0.123	0.126	0.130	0.134	0.139	Continuing	Continuing
(U) PMC, BLI# 462000 APSCE		4.529	4.636	4.715	4.820	3.538	3.924	Continuing	Continuing

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification										DATE: **February 2002**	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7**						R-1 ITEM NOMENCLATURE 0207161N-Tactical Air Intercept					
COST ($ in Millions)	Prior Year Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost	**224.265**		**23.801**	**16.257**	**1.957**	**0.716**	**1.142**	**1.254**	**1.288**	**0.000**	**270.680**
E0457 AIM-9X	**224.265**		**23.801**	**16.257**	**1.957**	**0.716**	**1.142**	**1.254**	**1.288**	**0.000**	**270.680**
Quantity of RDT&E Articles	**6**		**4**	**13**							**23**

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The AIM-9X is a long-term evolution of the AIM-9, a fielded system, qualifying this as a research category operational systems development. The AIM-9X (Sidewinder) short range air-to-air missile modification program provides a launch and leave, air combat munition that uses passive infrared (IR) energy for acquisition and tracing of enemy aircraft and complements the Advanced Medium Range Air-to-Air Missile. Air superiority in the short range air-to-air missile arena is essential and includes first shot, first kill opportunity against an enemy employing IR countermeasures. The AIM-9X employs several components common with the AIM-9M. Anti-Tamper features are being incorporated to protect improvements inherent in AIM-9X design.

Status: Acquisition Decision Memorandum (ADM) for LRIP II & III was signed in November 2001.

The joint flight test program has completed 18 unguided and 19 guided launches proving capabilities well beyond the fielded AIM-9M.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

R-1 SHOPPING LIST - Item No. 197

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification										DATE: **February 2002**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	0207161N-Tactical Air Intercept					PROJECT NUMBER AND NAME E0457-AIM-9X					
COST ($ in Millions)	Prior Year Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**224.265**		**23.801**	**16.257**	**1.957**	**0.716**	**1.142**	**1.254**	**1.288**	**0.000**	**270.680**
RDT&E Articles Qty	**6**		**4**	**13**							**23**

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The AIM-9X is a long-term evolution of the AIM-9, a fielded system, qualifying this as a research category operational systems development. The AIM-9X (Sidewinder) short range air-to-air missile modification program provides a launch and leave, air combat munition that uses passive infrared (IR) energy for acquisition and tracking of enemy aircraft and complements the Advanced Medium Range Air-to-Air Missile. Air superiority in the short range air-to-air missile arena is essential and includes first shot, first kill opportunity against an enemy employing IR countermeasures. The AIM-9X employs several components common with the AIM-9M. Anti-Tamper features are being incorporated to protect improvements inherent in AIM-9X design.

Status: Acquisition Decision Memorandum (ADM) for LRIP II & III was signed in November 2001.

The joint flight test program has completed 18 unguided and 17 guided launches proving capabilities well beyond the fielded AIM-9M.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2001 ACCOMPLISHMENTS: (Navy Share Only)

- (U) ($16.993) Continued EMD efforts to include completion of DT-IIC and execution of DT-IID (TECHEVAL).
- (U) ($5.855) Continued providing government flight test support through implementation of DT-IID and DT assistance with operational testers.
- (U) ($0.825) Provided for consulting services, technical engineering, and management support.
- (U) ($0.128) Headquarters travel performed.

2. FY 2002 PLANS: (Navy Share Only)

- (U) ($7.357) Continue EMD efforts to include continuation of OT-IIB.
- (U) ($7.505) Continue providing Government flight test support.
- (U) ($0.845) Provide for consulting services, technical engineering, and management support.
- (U) ($0.058) Headquarters travel planned.
- (U) ($0.492) Portion of extramural program reserved for Small Business Innovation Research Assessment in accordance with 15 USC 638.

R-1 SHOPPING LIST - Item No. 197

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0207161N-Tactical Air Intercept	E0457-AIM-9X

2. FY 2003 PLANS: (Navy Share Only)
- (U) ($1.093) Completion of EMD efforts to include OT-IIB....includes correction of issues identified during OT.
- (U) ($0.658) Completion of flight test support....all data from testing must be transitioned to operational databases.
- (U) ($0.186) Provide for consulting services, technical engineering, and management support.
- (U) ($0.020) Headquarters travel planned.

R-1 SHOPPING LIST - Item No. 197

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0207161N-Tactical Air Intercept	E0457-AIM-9X

(U) B. PROGRAM CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	21.473	16.402	
(U) Adjustments from the FY02 President's Budget:	2.328	-0.145	
(U) FY 2003 President's Budget	23.801	16.257	1.957

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2001 net increase of $2.328 million reflects an increase of $.975 million for developmental testing and an increase of $1.915 million for Anti-Tamper offset by a decrease of $.121 million for reprioritzation of a requirement within the Navy and a decrease of $.441 million for a Small Business Innovative Research assessment. The FY 2002 decrease of 145K reflects an undistributed congressional reduction.

(U) Schedule: OT-IIB schedule changed from first to second quarter of FY 2002 due to the finalization of software, the resolution of battery issues and availability of GFE target drones.

(U) Technical: Not Applicable.

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete
AIM-9X Mods/Missile*	26.679	24.205	53.250	30.893	33.479	34.739	35.988	942.336
AIM-9M Mods	0.600	0.795	0.595	0.000	0.000	0.000	0.000	0.000
AIM-9X Spares	0.753	0.973	0.996	0.862	1.044	0.924	1.032	0.000
AIM-9X Mods/Missile (Air Force)*	27.925	33.197	55.213	71.590	54.865	57.321	55.578	840.997
(U) RELATED AIR FORCE RDT&E:								
Program Element: 0207161F **	21.657	5.713	2.943	0.382	5.659	15.419	5.702	

*FY01 is funded in the modification line/FY02 and future years are a new missile program.
** FY05 RDT&E and out represent planned funding for P3I effort.

R-1 SHOPPING LIST - Item No. 197

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N / BA-7	0207161N-Tactical Air Intercept	E0457-AIM-9X	

(U) D. ACQUISITION STRATEGY: After a full and open competition, a Cost Plus Incentive Fee/Award Fee contract was awarded to Hughes Missile System Company (now Raytheon Systems Corporation) (RSC) to complete missile system development and prepare for production. This Engineering and Manufacturing Development (EMD) contract includes three Fixed Price options for Low Rate Initial Production (LRIP) Lots I, II and III. The FY01 LRIP I option was exercised in Nov 2000, LRIP II option was exercised in Nov 2001 and LRIP III option is planned to be exercised in Nov 2002. The EMD contract and production options provide strong incentives for the contractor to control costs, achieve reliability performance and deliver on schedule.

The Navy Acquisition Executive will make the Full Rate Production (FRP) decision with advice from the Air Force Acquisition Executive subsequent to the successful completion of the associated exit criteria. FRP Lots 4 through 7 contracts will be Firm Fixed-Price (FFP) with incentives provided the contractor meets or beats his Procurement Price Commitment Curve (PPCC). Rewards or penalties are provided depending on RSC's performance relative to the PPCC. A Service review of RSC's Lot 4 through 7 proposals relative to the PPCC will be held prior to award of those contracts.

(U) E. SCHEDULE PROFILE:

	FY 2001	FY 2002	FY 2003	TO COMPLETE
(U) Program Milestones			3Q/03 MSIII	
(U) Engineering Milestones		2Q/02 OTRR for OPEVAL		
(U) T&E Milestones	2Q/01-4Q/01 DT-IID	2Q/02-1Q/03 OT-IIB		
(U) Contract Milestones	1Q/01 LRIP I award	1Q/02 LRIP II award	1Q/03 LRIP III award	Full Rate Production 1Q/04

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0207161N-Tactical Air Intercept			PROJECT NUMBER AND NAME E0457-AIM-9X							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
DEM/VAL	C/CPIF	Hughes, Tucson, AZ	6.685								6.685	6.685
DEM/VAL	C/CPIF	Raytheon, Bedford, MA	8.587								8.587	8.587
EMD	C/CPIF/AF	Raytheon, Tucson, AZ	97.920	15.447	10/00	6.347	10/01	0.925	10/02		120.639	120.639
EMD Award Fee	C/CPIF/AF	Raytheon, Tucson, AZ	11.367	1.546	11/00	1.010	12/01	0.168	11/02		14.091	14.091
Aircraft Integration	C/CPFF	Boeing, St. Louis, MO	24.397							0.244	24.641	24.641
Engineering Services	WX	NAWCWD	31.644	1.174	11/00	0.595	10/01	0.248	11/02	0.871	34.532	
Engineering Services	WX	NAWCAD	2.637	0.939	11/00	0.250	11/01	0.075	11/02	0.423	4.324	
Miscellaneous I/H (Efforts <$1.0)	Various	Various	6.446	0.744	11/00	0.575	11/01			0.318	8.083	
LAU-7 Launcher	C/CPFF	Boeing, St. Louis, MO	4.552								4.552	4.552
Contract (P3I)	TBD	TBD								2.494	2.494	2.494
Engineering Services	MIPR	Eglin AFB, FL		1.810	11/00						1.810	
Subtotal Product Development			194.235	21.660		8.777		1.416		4.350	230.438	

Remarks:
Target Value includes both Navy and Air Force Funding. All other fields represent Navy share only. New target value of EMD reflects December 2001 DAES.
Total Prior Years - FY95 and prior funded under P.E. 0603715D. FY96 and out are funded under P.E. 0207161N.

R-1 SHOPPING LIST - Item No. 197

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0207161N-Tactical Air Intercept			PROJECT NUMBER AND NAME E0457-AIM-9X							
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX	NAWCWD	18.259	1.178	11/00	6.660	11/01	0.335	11/02		26.432	
Developmental Test & Evaluation	WX	NAWCAD	4.683								4.683	
Subtotal T&E			22.942	1.178		6.660		0.335			31.115	
Remarks: Prior Years included in Product Development.												
Contractor Engineering Support	ID/IQ,T&M	Endmark, Arlington, Va	3.670								3.670	3.670
Contractor Engineering Support	ID/IQ,T&M	MSTT, Arlington, Va	0.776	0.210	12/00						0.986	0.986
Program Management Support	ID/IQ,T&M	NSM, Arlington, Va.	1.359	0.081	11/00						1.440	1.440
Travel	WX	PMA259 IPT	1.077	0.128	10/00	0.058	10/01	0.020	11/02	0.050	1.333	
Various Eng. Support Contracts	ID/IQ,T&M	Various	0.206	0.544	Various	0.270	Various	0.186	Various		1.206	1.206
SBIR Assessment						0.492					0.492	
Subtotal Management			7.088	0.963		0.820		0.206		0.050	9.127	
Remarks:												
Total Cost			224.265	23.801		16.257		1.957		4.400	270.680	
Remarks: Support Costs included in Management Costs.												

R-1 SHOPPING LIST - Item No. 197

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification									DATE: **February 2002**		
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7**						R-1 ITEM NOMENCLATURE 0207163N AMRAAM					
COST ($ in Millions)	Prior Year Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost	**53.364**		**11.290**	**10.700**	**8.124**	**9.527**	**8.156**				**101.161**
E0981 AMRAAM	**53.364**		**11.290**	**10.700**	**8.124**	**9.527**	**8.156**				**101.161**
Quantity of RDT&E Articles **Not Applicable**											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This joint Navy/Air Force program is structured in response to the Joint Service Operational Requirement and Mission Element Need Statement to develop an air superiority air-to-air missile with significant improvements in operational utility and combat effectiveness. This program supports the integration of the AMRAAM into Navy aircraft with analysis of Navy unique applications, simulation capability development, aircraft missile integration tasks, pre-planned product improvement (P3I) efforts, and procurement of hardware to support Navy test and evaluation tasks.

(U) JUSTIFICATION FOR BUDGET ACTIVITY:

This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

R-1 SHOPPING LIST - Item No. 198

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification									DATE: **February 2002**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0207163N AMRAAM					PROJECT NUMBER AND NAME E0981 AMRAAM					
COST ($ in Millions)	Prior Year Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**53.364**		**11.290**	**10.700**	**8.124**	**9.527**	**8.156**				**101.161**
RDT&E Articles Qty **Not Applicable**											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This joint Navy/Air Force program is structured in response to the Joint Service Operational Requirement and Mission Element Need Statement to develop an air superiority air-to-air missile with significant improvements in operational utility and combat effectiveness. This program supports the integration of the AMRAAM into Navy aircraft with analysis of Navy unique applications, simulation capability development aircraft missile integration tasks, pre-planned product improvement (P3I) efforts, and procurement of hardware to support Navy test and evaluation tasks.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY2001 Accomplishments:

-(U) ($9.801) Continued system engineering activities in AMRAAM P3I Phase 3 EMD program (incorporating Air Force funding of $48.522) which include conducting proof of design (POD) testing of Phase 3 components, developing, coding, and testing P3I Phase 3 software, and integrating hardware and software into missile test articles for use in ground testing.

-(U) ($1.489) Continued engineering support of AMRAAM, including investigation and analysis of technologies that offer potential improvements in AMRAAM lethality/performance and compatibility with related weapons systems.

2. FY2002 Plans:

-(U) ($8.421) Continue system engineering activities in AMRAAM P3I Phase 3 EMD program (incorporating Air Force funding of $53.531) which include fabrication and integration of proof of manufacturing (POM) hardware, and unit all-up-round missile ground qualification testing. Captive carriage flight-testing will also begin.

-(U) ($1.670) Continue engineering support of AMRAAM, including investigation and analysis of technologies that offer potential improvements in AMRAAM lethality/performance and compatibility with related weapons systems.

-(U) ($.285) Continue aircraft integration activities and test and evaluation for Navy unique requirements.

-(U) ($.324) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 68.

3. FY 2003 Plans:

- (U) ($5.656) Continue systems engineering/aircraft integration activities in AMRAAM P3I Phase 3 EMD program (incorporating additional Air Force funding of $36.150) conducting proof of manufacturing (POM) testing of Phase 3 components with emphasis on Navy unique compatibility requirements and aircraft integration/compatibility requirements. Development flight testing begins. Complete contract EMD phase.

-(U) ($1.918) Continue engineering support of AMRAAM, including investigation and analysis of technologies that offer potential improvements in AMRAAM lethality/performance and compatibility with related weapons systems.

-(U) ($.550) Continue aircraft integration activities and test and evaluation for Navy unique requirements.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0207163N AMRAAM	E0981 AMRAAM

(U) B. PROGRAM CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	12.011	10.795	
(U) Adjustments from the President's Budget:	(0.721)	(0.095)	
(U) FY 2003 President's Budget Submit:	11.290	10.700	8.124

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2001 decrease of $.721 million reflects a reduction of $.372 million for Small Business Innovative Research assessment and a $.349 million decrease for reprioritization of requirements within the Navy.

The FY2002 decrease of $.095 million reflects an undistributed congressional reduction.

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete	Total Cost
WPN/P1#6	QTY	63	57	100	55	48	48	48	526	
	$	37.592	36.717	50.937	35.891	34.338	35.300	36.169	220.936	1,545.372

Related RDT&E

(U) PE 0207130F F-15
(U) PE 0204126N F/A-18 Squadrons
(U) PE 0207163F AMRAAM P3I
(U) PE 0207133F F-16
(U) PE 0604239F F-22
(U) PE 0207134F F-15E

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0207163N AMRAAM	PROJECT NUMBER AND NAME E0981 AMRAAM	

(U) D. ACQUISITION STRATEGY: With the December 1997 merger of Raytheon and Hughes into the Raytheon Systems Company, the government implemented a new acquisition strategy labeled AMRAAM Vision 2000. The Vision 2000 strategy capitalizes on a multi-year hardware pricing agreement between Raytheon and the government under the auspices of the Department of Justice which supported the Raytheon/Hughes merger and a shift in government business practices toward a more "commercial" business arrangement. The lot 12 procurement contract award includes an overarching price control strategy and a transfer of Total System Performance Responsibility (TSPR) to the prime contractor, Raytheon Defense Systems Segment in Tucson, Arizona. The purchase includes missiles, warranties, spares, missile performance tracking, and reliability tests. Raytheon assumes responsibility for all specifications below missile performance. Also included in the Lot 12 contract are pre-priced options for Lots 13 thru 15 (FY1999 thru FY2001).

(U) E. SCHEDULE PROFILE:

	FY 2001	FY 2002	FY2003	TO COMPLETE
(U) Program Milestones				
(U) Engineering Milestones	4Q P3I-3 CDR			Continuing Program
(U) T&E Milestones		2Q Begin P3I FLT TEST		Continuing Program
(U) Contract Milestones			4Q FY2003 Complete P3I Phase III EMD Contract	Continuing Program

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0207163N AMRAAM			PROJECT NUMBER AND NAME E0981 AMRAAM						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	SS/CPAF	AAC Eglin AFB FL	19.526	7.536	11/00	6.292	11/01	4.808	11/02	11.061	49.223	49.223
Primary Hardware Development	WX	NAWC-AD Patuxent River MD				0.020	11/01	0.021	11/02	0.043	0.084	
Primary Hardware Development	WX	NAWC-WD China Lake CA		0.330	11/00	0.073	11/01	0.072	11/02	0.147	0.622	
Primary Hardware Development	WX	NSWC Dahlgren VA				0.020	11/01	0.021	11/02	0.043	0.084	
Award Fees	SS/CPAF	AAC Eglin AFB FL	2.089	1.339	11/00	1.111	11/01	0.848	11/02	1.952	7.339	7.339
SBIR Assessment						0.324					0.324	
Prior Years Development			21.653								21.653	
Subtotal Product Development			43.268	9.205		7.840		5.770		13.246	79.329	
Remarks: Prior year award fees were $2.089 and are estimated to be approximately 15% of contract value for future years.												
Development Support	SS/FFP	JHU/APL Laurel MD		0.435	01/01	0.374	01/02	0.378	01/03	0.774	1.961	1.961
Development Support	RX	NSMA VA		1.330	12/00	1.693	12/01	0.875	12/02	1.826	5.724	
Development Support	WX	NAWC-WD China Lake CA		0.050	10/00	0.043	10/01	0.126	10/02	0.258	0.477	
Development Support	WX	NAWC-AD Patuxent River MD		0.145	04/01						0.145	
Prior Years Support			6.467								6.467	
Subtotal Support			6.467	1.960		2.110		1.379		2.858	14.774	
Remarks:												

R-1 SHOPPING LIST - Item No. 198

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0207163N AMRAAM				PROJECT NUMBER AND NAME E0981 AMRAAM						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX	NAWC WD China Lake CA				0.285	10/01	0.550	11/02	0.700	1.535	
Prior Years Test & Evaluation			0.956								0.956	
Subtotal T&E			0.956			0.285		0.550		0.700	2.491	
Remarks:												
Program Management Support	WX	NAWC AD Patuxent River MD				0.315	10/01	0.171	10/02	0.357	0.843	
Travel	MIPR	PMA-259 Eglin AFB FL		0.125	10/00	0.150	10/01	0.254	10/02	0.522	1.051	
Prior Years Management Support			2.673								2.673	
Subtotal Management			2.673	0.125		0.465		0.425		0.879	4.567	
Remarks:												
Total Cost			53.364	11.290		10.700		8.124		17.683	101.161	
Remarks:												

R-1 SHOPPING LIST - Item No. 198

BUDGET ACTIVITY: 7 **PROGRAM ELEMENT: 0303109N**
PROGRAM ELEMENT TITLE: Satellite Communications (Space)

(U) Cost ($ in Thousands)	FY 2001 ACTUAL	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	COST TO COMPLETE	TOTAL COST
X0728 EHF SATCOM Terminals	8,786	12,111	48,708	51,607	35,417	17,579	10,522	CONT.	CONT.
X0731Fleet Satellite Comm	3,346	4,554	669	783	1,818	1,838	1,842	CONT.	CONT.
X2472 Mobile User Segment	27,133	37,033	60,526	296,671	253,551	167,137	8,814	CONT.	CONT.
X9122 Advanced Wideband System			6,000	13,000	19,000	37,000	72,000	CONT	CONT.
Total PE Cost	39,265	53,698	115,903	362,061	309,786	223,554	93,178	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) The Navy Extremely High Frequency (EHF) Satellite Communications (SATCOM) Program (NESP) provides for the development and production of terminals to provide anti-jam, low probability of intercept/detection communications capability for Command and Control of the fleet. NESP operates with Fleet Satellite (FLTSAT) EHF Packages (FEP), Ultra High Frequency (UHF) Follow On (UFO), and Milstar I/II Satellite Packages. The Milstar program is comprised of satellites, control stations, and aircraft, ship, and ground terminals to provide assured worldwide, secure, anti-jam, survivable communications for the National Command Authority, CINCs, and operational commanders. The Advanced EHF (AEHF) Operational Requirements Document (ORD) was validated by the Joint Requirements Oversight Council (JROC) on 22 Mar 99. AEHF development cost estimates are included in the budget.

(U) The Navy Super High Frequency (SHF) Satellite Communications (SATCOM) program provides for the development and production of terminals to provide high capacity reliable, low probability of intercept (LPI), secure, and jam resistant communications to Joint and Allied Forces. SHF SATCOM operates with the Defense Satellite Communication System (DSCS), DSCS Service Life Extension Program (SLEP), Wideband Gapfiller Satellite (WGS) System, and the Advanced Wideband System (AWS) satellites. The SHF SATCOM system is comprised of satellites, ground stations, and aircraft, ship and ground terminals to provide assured worldwide access to services such as Defense Information Systems Network (DISN), Global Command and Control System (GCCS), Plain Old Telephone Service (POTS), Secure Telephone Unit III (STU III) Secure Communications Service, Internet Protocol Routed Networks, and other digital services. The satellite systems SHF SATCOM operate over are transitioning from old technology DSCS III satellites to the more advanced DSCS SLEP and WGS satellites beginning in FY 99 and continuing through FY 05. The population of Navy SHF SATCOM terminals is also growing at a rapid pace. In order to meet the communication requirements of Navy users, advanced communication technologies for SHF SATCOM terminals must be developed to take full advantage of the capabilities of the new satellites in an efficient manner.

(U) Fleet Satellite Communications includes Sensitive Compartmented Information (SCI) Networks (formerly SCI Automated Digital Network System (ADNS)) which provides real time indications and warning communications support and enhanced SCI interoperability with other services, agencies, and allies permitting a level of integration not available with current systems.

(U) The SATCOM Systems Integration (SSI) initiative will expand upon the collaborative development capabilities between fleet systems and the C4ISR systems integration and production environment at SSC Charleston, and will provide a medium for direct warfighter involvement in the development process. The SSI initiative provides a developmental transport medium for more effective transition of advanced technologies into fleet C4ISR systems. The SSI initiative will support the integration and

evaluation of network-centric applications employed by the military services and national agencies in an effort to map an integration strategy for these applications agencies in an effort to map an integration strategy for these applications into wireless SATCOM systems. SSC Charleston will procure equipment, integrate systems, and establish connectivity between communications labs to create a new end-to-end capability for the development, integration, test and evaluation across a range of SATCOM technologies.

(U) The Joint Tactical Radio System-Maritime (JTRS-M) will provide tactical joint interoperable UHF satellite communications. The Digital Modular Radio (DMR) has been identified as the candidate for modification to JTRS compliance. DMR is software programmable, modular in hardware and software design, and backward compatible with legacy radios and cryptographic devices. Per CJCSI 6251.01, JTRS-M/F will replace all non-compliant, mostly 1970's design radios and multiplexers, with a software programmable radio that meets present and future requirements in a cost effective and forward thinking manner. JTRS-M/F initial baseline provides the framework for meeting the planned future SATCOM and Line of Sight (LOS) communications requirements in the 20MHz to 2 GHz spectrum. The modification of DMR to be compliant with the JTRS hardware and software architecture will allow the fielding of an initial set of JTRS compliant waveforms (via modified DMR) that satisfy the JTRS-M/F requirements. Beginning in FY03, JTR-M transfers to PE 0604280N Project X3073.

(U) The Mobile User Objective System (MUOS) program provides for the development of the next generation DoD advanced narrowband communications satellite constellation. The current UHF Follow-On (UFO) constellation is expected to degrade below acceptable availability parameters by FY08 and will require phased replacement starting at that time. In addition, new user requirements have been identified and strategies have been modified to incorporate new concepts and technologies. The joint MUOS Integrating Integrated Product Team (IIPT) has developed an acquisition strategy to address the exponential growth of narrowband communications demands, which has resulted in identifying the need to explore new approaches to acquiring satellite based communications capabilities. This program builds on state of the art technologies and commercial practices to develop a totally responsive joint warfighter system.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for the upgrade of an existing, operational system.

(U) The Navy Advanced Wideband Integrated Terminal Satellite Communications (SATCOM) program provides for the development and production of terminals to provide high capacity reliable, low probability of intercept (LPI), Anti-Jam (AJ), communications capability to the fleet. Terminals will support multiple data streams over Q-band, Ka-band, and X-band. The terminals will also support mesh networking without the need for gateway terminals.

B. (U) PROGRAM CHANGE:

(U) Funding:

FY 2001: -$278K Section 8086 .7% Pro-Rata Reduction; -$87K Government-Wide Rescission; -$945K SBIR reduction; -$12K Federal Technology Transfer; +$2,000K Space Activities; +$809K MUOS Offload Demo.

FY2002: -$479K Section 8123 Management Reform Initiative: -$53K Section 8032 FFRDC.

BUDGET ACTIVITY: 7 **PROGRAM ELEMENT: 0303109N**
PROGRAM ELEMENT TITLE: Satellite Communications (Space)

(U) Schedule:

FY 2002: MUOS Program Milestone A moved from 2nd Qtr 02 to 3rd Qtr 02. Award of two MUOS CAD contracts moved from 2nd Qtr 02 to 3rd Qtr 02. (X2472). DTIUI-D moved from 7/02 to 8/02. OT-IIB moved from 9/02 to 10/02. Milstar II Launch (Flight 5) moved from 2/2 to1/02.

EXHIBIT R-3, FY 2003 RDT&E, N PROJECT COST ANALYSIS **DATE: FEBRUARY 2002**

BUDGET ACTIVITY: 7 **PROGRAM ELEMENT: 0303109N** **PROJECT NUMBER: X0728**
PROGRAM ELEMENT TITLE: Satellite Communications (Space) **PROJECT TITLE: EHF SATCOM Terminal**

PROJECT NUMBER& TITLE	FY 2001 ACTUAL COST	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	COST TO ESTIMATE	TOTAL COMPLETE
X0728 EHF SATCOM Terminals	8,786	12,111	48,708	51,607	35,417	17,579	10,522	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) Navy Extremely High Frequency (EHF) Satellite Communications (SATCOM) Program provides for the development and production of terminals to provide anti-jam (A/J), low probability of intercept (LPI)/detection communications capability for Command and Control of the fleet. The terminals will provide physical and electromagnetically survivable, worldwide communications in the current and projected electromagnetic and nuclear threat environments. Navy EHF terminals are interoperable with Army and Air Force terminals and will operate with Milstar as well as EHF packages on-board Ultra High Frequency (UHF) Follow-On (UFO) Satellites 4 through 11 and FLTSATCOM Satellites 7 and 8. The increased capability provided by EHF terminals is accomplished by use of the wider bandwidths available at extremely high frequencies, narrow antenna bandwidths, spread spectrum techniques, on-board satellite processing, and advanced signal processing technology.

(U) The Navy Super High Frequency (SHF) Satellite Communications (SATCOM) program provides for the development and production of terminals to provide high capacity reliable, low probability of intercept (LPI), secure, and jam resistant communications to Joint and Allied Forces. SHF SATCOM operates with the Defense Satellite Communication System (DSCS), DSCS Service Life Extension Program (SLEP), Wideband Gapfiller Satellite (WGS) System, and the Advanced Wideband System (AWS) satellites. The SHF SATCOM system is comprised of satellites, ground stations, and aircraft, ship and ground terminals to provide assured worldwide access to services such as Defense Information Systems Network (DISN), Global Command and Control System (GCCS), Plain Old Telephone Service (POTS), Secure Telephone Unit III (STU III) Secure Communications Service, Internet Protocol Routed Networks, and other digital services. The satellite systems SHF SATCOM operate over are transitioning from old technology DSCS III satellites to the more advanced DSCS SLEP and WGS satellites beginning in FY 99 and continuing through FY 05. The population of Navy SHF SATCOM terminals is also growing at a rapid pace. In order to meet the communication requirements of Navy users, advanced communication technologies for SHF SATCOM terminals must be developed to take full advantage of the capabilities of the new satellites in an efficient manner.

(U) The EHF Medium Data Rate (MDR) upgrade program is near development completion and provides increased bandwidth by providing higher data rates [4.8 kilobits per second (Kbps) – 1.544 megabits per second (Mbps)] when communicating with Milstar II satellites.

(U) The Navy EHF Communications Controller (NECC) provides automated, netted tactical data information exchange over jam resistant EHF LDR satellite links. The NECC will provide for load and channel sharing, resource management, communications management and planning, network control and monitoring, and packet switching.

(U) The EHF Time Division Multiple Access (TDMA) Interface Processor (TIP) will support wide area network (WAN) implementation through reliable, efficient, netted data exchange using MDR services. The MDR TIP combines support for general-purpose internet protocol (IP) data delivery and high speed, rapid delivery of tactical data within a single system architecture. TIP supports single-beam, multi-beam, and multi-satellite networks.

BUDGET ACTIVITY: 7 **PROGRAM ELEMENT: 0303109N** **PROJECT NUMBER: X0728**
PROGRAM ELEMENT TITLE: Satellite Communications (Space) **PROJECT TITLE: EHF SATCOM Terminal**

(U) Advanced EHF is the follow-on satellite communications system and will provide worldwide, secure, survivable satellite communications to U.S. and International Partners strategic and tactical forces during all levels of conflict. The AEHF system provides an increase in single service capability from 1.5 Mbps to 8 Mbps, increases the number of coverage areas and retains A/J, LPI protection characteristics. It is compatible with today's Navy LDR/MDR terminals and will sustain the MILSATCOM architecture by providing connectivity across the spectrum of mission areas, to include land, air and naval warfare, special operations; strategic nuclear operations; strategic defense, theater missile defense; and space operations and intelligence. The AEHF system will replenish and improve on the capabilities of the Milstar system. The Milstar System is projected to begin degrading by FY 2003. The new system will equip the warfighters with the assured, jam resistant, secure communications as described in the ORD for the joint AEHF Satellite Communications System. The AEHF system will provide crosslinks within the AEHF constellation as well as between AEHF satellites and Milstar satellites in the backwards compatible mode. Mission requirements specific to Navy operations, including threat levels and scenarios, are contained in the AEHF ORD.

(U) The Challenge Athena Program requires the following enhancements: (a) Satellite Doppler Buffer Fill Meter. A "gauge" on the GUI that indicates the current level of fill of the satellite Doppler buffer. The terminal operator will be able to determine if the buffer is close to an overflow/underflow condition. With this indicator, he can then better plan when to re-center it without losing critical communications. (b) Channel Interleave Option for MIL-STD-188-165 Modes. A mode that allows the channel interleaver to be enabled without the additional bandspreading required for framing and Reed-Solomon FEC that provides handover and EMI protection (c) Higher Data Rates. Increase the maximum provided data rate of the MD-1030B(V) 9 Modem to 4.096 Mb/s with QPSK modulation. Higher available data rates in the MD-1030B(V)9 modem will allow the customer to achieve its near term throughput needs without putting up additional carriers. (d) Shore Handover Error Burst. The MD-1030B(V)9 modem maintains its Bit Count Integrity (BCI) both at ship and shore based installations through shipboard antenna handover events. In addition, the MD-1030B(V)9 achieves virtual error free performance for ship's received data.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2001 ACCOMPLISHMENTS:

   (U) ($1,018) Completed MDR Modem and MDR Satellite Simulator (SATSIM) upgrade and performed Over the Air (OTA) MDR communications testing and LDR regression testing. Provided software corrections as necessary.

   (U) ($1,896) Continued development of TIP/NECC modifications and performed OTA testing to verify performance in multi-terminal configuration.

   (U) ($3,350) Initiated identification of Advanced EHF terminal upgrade specification. Initiated system engineering studies and analysis. Performed waveform simulation and analysis. Participated in satellite to terminal interface requirements studies and analysis.

   (U) ($1,624) Participated in Milstar on Orbit test and checkout of Milstar flight 4 (MST 8000). Conducted MDR Developmental Test and Operational Test (DT/OT) for ship and shore systems. Participated in joint interoperability communications with Army SMART-T MDR terminal.

   (U) ($898) Continued terminal development engineering analysis and management.

BUDGET ACTIVITY: 7 **PROGRAM ELEMENT: 0303109N** **PROJECT NUMBER: X0728**
PROGRAM ELEMENT TITLE: Satellite Communications (Space) **PROJECT TITLE: EHF SATCOM Terminal**

2. (U) FY 2002 PLAN:

(U) ($2,025) Complete development of TIP/NECC Increment 3 modifications.

(U) ($6,797) Continue AEHF system engineering studies and analysis, perform terminal upgrade design and development, develop test procedures, begin development of terminal and satellite simulators, and perform initial ground based testing.

(U) ($306) Participate in Milstar on Orbit test and checkout of Milstar flight 5 and 6 (MST 8000). Continue to participate in joint interoperability communications with Army SMART-T MDR terminal.

(U) ($1,033) Continue terminal development engineering analysis and management.

(U) ($1,650) Develop advanced SHF modems for Wideband Gapfiller Satellite system and AN/WSC-6 terminal upgrades.

(U) ($300) Develop Satellite Doppler Buffer Fill meter, Channel Interleave Option for MIL-STD-188-165 Modes, Higher Data Rates, and Shore Handover Error Burst.

3. (U) FY 2003 PLAN:

(U) ($2,130) Continue development of an advanced modem system and AN/WSC-6 Wideband Gapfiller system terminal upgrades and to conduct follow on test and evaluation.

(U) ($15,162) AEHF Development, First Phase: Continue first phase of AEHF development for System Development and Demonstration for ship, shore and submarine platforms, contract awarded in FY 2002. Risk reduction phase necessary to demonstrate waveform interface compatibility testing between AEHF terminal and Lincoln Lab SATSIM and demonstrate payload-to-terminal on-orbit backward compatibi8lity with existing Milstar constellation. Estimated completion in Q1 FY 2004.

(U) ($15,162) AEHF Development, First Phase: Complete development of AEHF Engineering Development Model (EDM) software such as operator interface, Terminal Control Processor, Modem Control Processor, Antenna Pointing Unit, and associated firmware. Software development also includes access control protocols, terminal Built In Testing (BIT)/BITE Adaptation Data Recorder, and LPI software.

(U) ($7,669) AEHF Development, First Phase: Continue development of a high-level test plan to ensure requirements are decomposed and the key modeling and analysis demonstrates acquisition, tracking, communications antenna checkout, antenna handover, motion, anti-jam, low probability of intercept, low probability of detection, link budgets, multiband/multimode feed/modem development etc.

(U) ($7,085) Continue terminal development engineering analysis and management of existing programs and first phase of AEHF terminal Development.

(U) ($1,500) EHF POLAR software development and systems engineering.

BUDGET ACTIVITY: 7 **PROGRAM ELEMENT: 0303109N** **PROJECT NUMBER: X0728**
PROGRAM ELEMENT TITLE: Satellite Communications (Space) **PROJECT TITLE: EHF SATCOM Terminal**

B. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars In Thousands)

	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	TO COMPLETE	TOTAL PROGRAM
OPN SHIP 321000								
OPN SHIP &Shore* 321500	63,321	63,974	83,331	41,071	113,371	119,585	CONT.	CONT.
OPN SHORE* 322000								

*Includes EHF terminal installation costs.
(U) Related RDT&E:
(U) PE 0303603F, Milstar
(U) PE 0303601F, Air Force Satellite Communications
(U) PE 0303142A, Army Extremely High Frequency Communications Terminal

C. (U) ACQUISITION STRATEGY:

	FY 2001	FY 2002	FY 2003
Program Milestones	Milstar II Launch (Flight 4) 2/01	Milstar II Launch (Flight 5) 1/02 DSCS SLEP Launch 5/02	DSCS SLEP Launch 5/03
Engineering Milestones	N/A	N/A	N/A
T&E Milestones	MST 8000 (Flight 4) 3/01	MDR FOT&E 11/01 MST 8000 (Flight 5) 3/02 AN/WSC-6 (V)9 FOT&E 8/02	Lincoln Lab SATSIM Interface Compatibility Testing 6/03
Contract Milestones	N/A	AEHF Awd 04/02	N/A

D. (U) SCHEDULE PROFILE: N/A

EXHIBIT R-3, FY 2003 RDT&E, N PROJECT COST ANALYSIS **DATE: FEBRUARY 2002**

BUDGET ACTIVITY: 7 **PROGRAM ELEMENT: 0303109N** **PROJECT NUMBER: X0728**
PROGRAM ELEMENT TITLE: Satellite Communications (Space) **PROJECT TITLE: EHF SATCOM Terminal**

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Prime Mission Equipment	SS/CPFF	Raytheon Marlborough, MA	41,601	5,420	12/00	9,334	2/02	36,456	12/02	CONT.	CONT.	
Prime Mission Equipment	WX	SSC SD	12,392	360	11/00	642	12/01	3,912	12/02	CONT.	CONT.	
Prime Mission Equipment	Various	Other	7,228	344	12/00	337	2/02	889	12/02	CONT.	CONT.	
Subtotal Product Development			61,221	6,124		10,313		41,257		CONT.	CONT.	
Remarks:												
Support Cost/Management Services												
Program Management	WX	SSC SD	6,771	171	12/00	73	12/01	395	12/02	CONT.	CONT.	
Program Management	WX	NUWC	5,305	286	12/00					CONT.	CONT.	
Program Management	Various	Other	4,478	128	12/00	510	12/01	2,252	12/02	CONT.	CONT.	
Subtotal Support			16,554	585		583		2,647		CONT.	CONT.	
Remarks												

EXHIBIT R-3, FY 2003 RDT&E, N PROJECT COST ANALYSIS **DATE: FEBRUARY 2002**

BUDGET ACTIVITY: 7 **PROGRAM ELEMENT: 0303109N** **PROJECT NUMBER: X0728**
PROGRAM ELEMENT TITLE: Satellite Communications (Space) **PROJECT TITLE: EHF SATCOM Terminal**

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Test & Evaluation												
Test & Evaluation	Various	Various	6,010	2,077	12/00	1,215	12/01	4,804	12/02	CONT.	CONT.	
Subtotal T&E			6,010	2,077		1,215		4,804		CONT.	CONT.	
Remarks												
Management Services												
Subtotal Management												
Remarks												
Total Cost			83,785	8,786		12,111		48,708		CONT.	CONT.	
Remarks												

BUDGET ACTIVITY: 7 **PROGRAM ELEMENT: 0303109N** **PROJECT NUMBER: X0731**
PROGRAM ELEMENT TITLE: Satellite Communications (Space) **PROJECT TITLE: FLTSATCOM**

PROJECT NUMBER & TITLE	FY2001 ACTUAL	FY2002 ESTIMATE	FY2003 ESTIMATE	FY2004 ESTIMATE	FY2005 ESTIMATE	FY2006 ESTIMATE	FY 2007 ESTIMATE	COST TO COMPLETE	TOTAL COST
X0731 Fleet Satellite Communications	3,346	4,554	669	783	1,818	1,838	1,842	CONT.	CONT.

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) The Sensitive Compartmented Information (SCI) Networks (formerly SCI Automated Digital Network Systems (ADNS)) implements the Integrated Special Intelligence Communications portion of the ADNS architecture, to provide services for transfer of Special Intelligence (SI) information between ships and shore activities in support of joint and combined operations. SCI Networks has been combined into the SI communications architecture and will provide real time indications and warning support to joint and component commanders through reliable high-speed transfer of sensor data and intelligence information. Enhanced interoperability with other services, agencies, and allies will permit a level of integration of SI operations not achievable with current systems.

(U) The SATCOM Systems Integration (SSI) initiative will expand upon the collaborative development capabilities between fleet systems and the C4ISR systems integration and production environment at SSC Charleston, and will provide a medium for direct warfighter involvement in the development process. The SSI initiative provides a developmental transport medium for more effective transition of advanced technologies into fleet C4ISR systems. The SSI initiative will support the integration and evaluation of network-centric applications employed by the military services and national agencies in an effort to map an integration strategy for these applications agencies into wireless SATCOM systems. SSC Charleston will procure equipment, integrate systems, and establish connectivity between communications labs to create a new end-to-end capability for the development, integration, test and evaluation across a range of SATCOM technologies.

(U) The Joint ultra high frequency (UHF) Military Satellite Communications Network Integrated Control System (JMINI) Control system will provide dynamic centralized control of joint 5-kHz and 25kHz UHF military satellite communications (MILSATCOM) voice and data resources (channels and Time Division Multiple Access (TDMA)) time slots via a globally integrated system of four control stations to be located at each of the three Naval Computer and Telecommunications Area Master Station (NCTAMS) sites plus Naval Computer and Telecommunications Station (NCTS) Guam.

(U) The Joint Tactical Radio System-Maritime (JTRS-M) will serve as the JMINI Control System Channel Controller and will provide tactical Joint interoperable UHF satellite communications per CJCSI 6251.01. JTRS-M/F will replace all non-compliant, mostly 1970's design radios and multiplexers, with a software programmable radio that can meet present and future requirements in a cost effective and forward thinking manner. The JTRS-M/F will be evolutionary in development beginning with a modification of the Digital Modular Radio (DMR) to be compliant with JTRS hardware and software. When complete, the modified DMR (renamed as JTRS-M/F Block I) will meet narrowband requirements of the Navy tactical communications. Beginning in FY03, JTRS-M transfers to PE 0604280N project X3073.

BUDGET ACTIVITY: 7 **PROGRAM ELEMENT: 0303109N** **PROJECT NUMBER: X0731**
PROGRAM ELEMENT TITLE: Satellite Communications (Space) **PROJECT TITLE: FLTSATCOM**

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2001 ACCOMPLISHMENTS:

   (U) ($2,000) Established developmental Systems Integration Environment (SIE) laboratory connectivity across a range of wireless SATCOM technologies. Established a new end-to-end laboratory capability for development, integration, test and evaluation across these systems and technologies.

   (U) ($1,346) Continued integration and implementation of SCI Networks and associated Special Intelligence Communication capabilities. Performed developmental testing of upgrades, OT&E, FOT&E, Functional Configuration Audit (FCA) and Physical Configuration Audit (PCA) of SCI Networks.

2. (U) FY 2002 PLAN:

   (U) ($749) Continue integration and implementation of SCI Networks and associated Special Intelligence Communication capabilities. Developmental Testing of upgrades, OT&E, FOT&E, FunctionalConfiguration Audit (FCA) and Physical Configuration Audit (PCA) of SCI Networks will be accomplished.

   (U) ($3,205) Initiate modification of the Digital Modular Radio (DMR), identified as the Joint Tactical Radio System (JTRS) candidate radio, to be compliant with JTRS software architecture. This effort will continue in Program Element 0604280N, Project Number X3073 JTRS-M/F in FY03.

   (U) ($600) Initiate development of contract package for JTRS-M/F Block II as the follow-on to the modified DMR. This effort will continue in Program Element 0604280N, Project Number X3073 JTRS-M/F in FY03.

3. (U) FY 2003 PLAN:

   (U) ($669) Continue integration and implementation of SCI Networks and associated Special Intelligence Communication capabilities. Continue to perform Developmental Testing of upgrades, OT&E, FOT&E, Functional Configuration Audit (FCA) and Physical Configuration Audit (PCA) of SCI Networks.

BUDGET ACTIVITY: 7 **PROGRAM ELEMENT: 0303109N** **PROJECT NUMBER: X0731**
PROGRAM ELEMENT TITLE: Satellite Communications (Space) **PROJECT TITLE: FLTSATCOM**

B. (U) OTHER PROGRAM FUNDING SUMMARY. (Dollars In Thousands)

NUMBER / TITLE	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete	Total Program
OPN COMM AUTO* 305000		0	7,049	4,977	567	559	5,517	5,890	CONT.	CONT.
OPN SATCOM 321500		10,353	13,460							
O&M,N		1,553	2,213	2,039	1,979	1,936	1,993	2,096	CONT.	CONT.

*Includes terminal installation costs.

(U) Related RDT&E: N/A

BUDGET ACTIVITY: 7 **PROGRAM ELEMENT: 0303109N** **PROJECT NUMBER: X0731**
PROGRAM ELEMENT TITLE: Satellite Communications (Space) **PROJECT TITLE: FLTSATCOM**

C. (U) ACQUISITION STRATEGY:

	FY2001	FY2002	FY2003
Program Milestones		SCI NETWORKS MS-IIIA 10/01 DMR MS-III DMR IOC	SCI NETWORKS MS-IIIB 02/03
Engineering Milestones	N/A	N/A	N/A
T&E Milestones	SCI NETWORKS OT-IIA 5/01	SCI NETWORKS DT II-D 08/02 DMR DT-IIIB DMR OT-IIIA, OT-IIIB	OT-IIB 10/02
Contract Milestones	N/A	N/A	N/A

Notes:
1) SCI Networks DT-IIC was accomplished in FY00.
2) Original SCI Networks program schedule included DT-II and OT-II tests leading to a single MS III event. Further testing for the submarine variant and messaging (DMS) included DT-III and OT-III tests. COMOPTEVFOR directed a program schedule change to a series of DT-II and OT-II events leading to separate MS-III decisions for the basic system, the submarine variant, and messaging support.
3) DMR R&D program transfers to PE 0604280N Project X3073 in FY03.

D. (U) SCHEDULE PROFILE: (See Paragraph C.)

BUDGET ACTIVITY: 7 **PROGRAM ELEMENT: 0303109N** **PROJECT NUMBER: X0731**
PROGRAM ELEMENT TITLE: Satellite Communications (Space) **PROJECT TITLE: FLTSATCOM**

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
1.1.1 Prime Mission Product	FPI	Titan	6,309	0		0				CONT.	CONT.	
1.1.1 Prime Mission Product	FFP	SRC	18,505	0		0				CONT.	CONT.	
1.1.1 Prime Mission Product	PD	NAVSUP/ SRC	5,223	0		0				CONT.	CONT.	
1.1.1 Prime Mission Product	VAR	VAR	11,594	806	12/00	564	12/01			CONT.	CONT.	
Engineering Support	Various	Various						227	12/02			
Subtotal Product Development			41,631	806		564		227		CONT.	CONT.	
Remarks:												
1.1.1 Prime Mission Product	CPFF	CSC	3,588	0		0				CONT.	CONT.	
1.1.1 Prime Mission Product	PD	NAVAIR/I SC	1,176	0		0				CONT.	CONT.	
1.1.1 Prime Mission Product	VAR	VAR	9,344	0		0				CONT.	CONT.	
1.1.1 Prime Mission Product	FFP	Motorola	0	0		2,750	TBD			CONT.	CONT.	
GFE												
Subtotal Support			14,108	0		2,750		0		CONT.	CONT.	
Remarks												

EXHIBIT R-2a, FY 2003 RDT&E, N PROJECT JUSTIFICATION: DATE: FEBRUARY 2002

BUDGET ACTIVITY: 7 **PROGRAM ELEMENT: 0303109N** **PROJECT NUMBER: X0731**
PROGRAM ELEMENT TITLE: Satellite Communications (Space) **PROJECT TITLE: FLTSATCOM**

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
1.2.5 System T&E	N/A	SSC SD	675	460	12/00	789	12/01	83	12/02	CONT.	CONT.	
1.2.5 System T&E	N/A	OPTEVFOR	129	49	12/00	60	12/01			CONT.	CONT.	
1.2.5 System T&E	VAR	VAR	9,296									
1.2.5 System T&E	N/A	SSC Chas	0	1,671	12/00							
1.2.5 System T&E	Various	Various	N/A	0	N/A			145	12/02	CONT	CONT	
Subtotal T&E			10,100	2,180		849		228		CONT.	CONT.	
Remarks:												
1.1.3 Program Management	CPFF	CSC	3,588							CONT.	CONT.	
1.1.3 Program Management	PD	NAVAIR/ISC	1,176							CONT.	CONT.	
1.1.3 Program Management	N/A	ACS	674							CONT.	CONT.	
1.1.3 Program Management	VAR	VAR	9,344	60	12/00	132	12/01	64	12/02	CONT.	CONT.	
1.1.3 Program Management	VAR	VAR	0			259	12/01			CONT.	CONT.	
1.1.3 Program Management	N/A	SSC Chas	0	300	12/00							
1.1.3 Program Management	Various	Various	N/A					150	12/02	CONT	CONT	
Subtotal Management			14,782	360		391		214		CONT.	CONT.	
Remarks:												
Total Cost			80,621	3,346		4,554		669		CONT.	CONT.	

EXHIBIT R-2a, FY 2003 RDT&E, N PROJECT JUSTIFICATION: DATE: FEBRUARY 2002

BUDGET ACTIVITY: 7 **PROGRAM ELEMENT: 0303109N** **PROJECT NUMBER: X2472**
PROGRAM ELEMENT TITLE: Satellite Communications (Space) **PROJECT TITLE: FLTSATCOM**

(U) Cost ($ in Thousands)

PROJECT NUMBER & TITLE	FY 2001 ACTUAL COST	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO ESTIMATE	TOTAL COMPLETE
X2472 Mobile User Segment	27,133	37,033	60,526	296,671	253,551	167,137	8,814	CONT.	CONT.

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) This program provides for the development of the next generation DoD narrowband communications satellite constellation, the Mobile User Objective System (MUOS).

(U) The current UFO constellation is expected to degrade below acceptable availability parameters and will require phased replacement by FY 08. In addition, new user requirements have been identified and strategies have been modified to incorporate new concepts and technologies. The joint MUOS Integrating Integrated Product Team (IIPT) has developed an acquisition strategy to address the exponential growth of narrowband communications demands, which has resulted in identifying the need to explore new approaches to acquiring satellite based communications capabilities. This program builds on state of the art technologies and commercial practices to develop a comprehensive joint warfighter system.

(U) This RDT&E effort supports the program objectives by assisting in identifying the most effective way to field a new system by FY 08. Multiple Concept Exploration (CE) contracts were awarded in early FY 00. Additional CE contracts were awarded in FY 01, along with commercial demonstrations, to support a MS A Defense Acquisition Board (DAB) in 3rd Qtr FY02. Two Component Advanced Development (CAD) contracts will be awarded after the DAB. The CAD contracts will continue through FY 02 into FY 03. In FY 04, a single System Design and Development (SDD) contract will be awarded with an option for production.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 01 ACCOMPLISHMENTS:

   (U) ($25,851) Awarded multiple contracts for MUOS and conducted demonstrations to evaluate commercial services viability in satisfying requirements.
   (U) ($1,282) Funded required independent Analysis of Alternatives for MUOS.

2. (U) FY 02 PLAN:

   (U) ($37,033) Award MUOS contracts and associated engineering tasks.

BUDGET ACTIVITY: 7 **PROGRAM ELEMENT: 0303109N** **PROJECT NUMBER: X2472**
PROGRAM ELEMENT TITLE: Satellite Communications (Space) **PROJECT TITLE: FLTSATCOM**

(U) FY 03 PLAN

(U) ($60,526) Fully fund MUOS contracts and associated system engineering tasks.

B. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars In Thousands)

NUMBER / TITLE	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete	Total Program
(U)WPN Line 243300 Fleet Satellite Communication Follow-On	0	0	0	31,226	534,859	573,878	606,205	CONT.	CONT.

C. (U) ACQUISITION STRATEGY:

(U) Concept Exploration contracts were awarded in early FY 00 and completed in late FY 01. Two Component Advancement Development (CAD) contracts will be awarded in 3Q FY 02. A System Development and Demonstration (SDD) contract will be awarded in early FY04 with production option in FY 05 and first launch in 2008.

D. (U) SCHEDULE PROFILE:

MUOS 2001	FY 2001	FY 2002	FY 2003
Program Milestones		3Q MS A	
Engineering Milestones	N/A		4Q - SDR
Milestones T&E	N/A	N/A	N/A
Contract Milestones		3Q-CAD Contracts Awarded	

EXHIBIT R-3, FY 2003 RDT&E, N PROJECT COST ANALYSIS **DATE: FEBRUARY 2002**

BUDGET ACTIVITY: 7 **PROGRAM ELEMENT: 0303109N** **PROJECT NUMBER: X2472**
PROGRAM ELEMENT TITLE: Satellite Communications (Space) **PROJECT TITLE: FLTSATCOM**

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
MUOS Contracts And Demos	COM/FP	Various	7,100	18,684		34,018	06/02	55,526	TBD	CONT.	CONT.	CONT.
UFO Digital Receiver			18,200								18,200	18,200
AoA for MUOS	MIPR	Various	1,500	1,282							2,782	2,782
Government Studies	Various	Various		711							CONT.	CONT.
Subtotal Product Development			26,800	20,677		34,018		55,526		CONT.	CONT.	CONT.
Remarks:												
Support Cost												
Program Support	Various	Program Support	4,450	6,456		3,015		5,000		CONT.	CONT.	CONT.
Subtotal Support Cost			4,450	6,456		3,015		5,000		CONT.	CONT.	CONT.
Remarks:												
Total Cost			31,250	27,133		37,033		60,526		CONT.	CONT.	CONT.

EXHIBIT R-3, FY 2003 RDT&E, N PROJECT COST ANALYSIS **DATE: FEBRUARY 2002**

BUDGET ACTIVITY: 7 **PROGRAM ELEMENT: 0303109N** **PROJECT NUMBER: X9122**
PROGRAM ELEMENT TITLE: Satellite Communications (Space) **PROJECT TITLE: Advanced Wideband Sys**

PROJECT NUMBER& TITLE	FY 2001 ACTUAL COST	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	COST TO ESTIMATE	TOTAL COMPLETE
X9122 Advanced Wideband System			6,000	13,000	19,000	37,000	72,000	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) The Navy Advanced Wideband Integrated Terminal Satellite Communications (SATCOM) program provides for the development and production of terminals to provide high capacity reliable, low probability of intercept (LPI), Anti-Jam (AJ), communications capability to the fleet. Terminals will support multiple data streams over Q-band, Ka-band, and X-band. The terminals will also support mesh networking without the need for gateway terminals.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2001 ACCOMPLISHMENTS:

   (U) Not applicable.

2. (U) FY 2002 PLAN:

   (U) Not applicable.

3. **(U) FY 2003 PLAN:**

   (U) ($6,000) Begin development of wideband tactical, protected tactical, and broadcast terminals to operate with Advanced Wideband System (AWS). Begin development of strategic terminals that will operate with the protected satellite in mid-latitude and polar regions. Development will include concept exploration and systems engineering studies and analysis. These studies and analysis will determine optimum methods to implement software programmable, modular, reconfigurable, and upgradeable SATCOM terminals. They will also investigate multi-band feed and phased array options. Terminal Modem concepts will also be explored. Risk areas will be explored and documented. Terminal designs will be explored to mitigate these risk areas.

EXHIBIT R-3, FY 2003 RDT&E, N PROJECT COST ANALYSIS **DATE: FEBRUARY 2002**

BUDGET ACTIVITY: 7 **PROGRAM ELEMENT: 0303109N** **PROJECT NUMBER: X9122**
PROGRAM ELEMENT TITLE: Satellite Communications (Space) **PROJECT TITLE: Advanced Wideband Sys**

B. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars In Thousands)

	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	TO COMPLETE CONT.	TOTAL PROGRAM CONT.
OPN Ship & Shore 321500	N/A	N/A	N/A	N/A	N/A	N/A	CONT.	CONT.

C. (U) ACQUISITION STRATEGY:

	FY 2001	FY 2002	FY 2003
Program Milestones	N/A	N/A	Milestone A (Concept and Technical Development)
Engineering Milestones	N/A	N/A	N/A
T&E Milestones	N/A	N/A	N/A
Contract Milestones	N/A	N/A	N/A

EXHIBIT R-3, FY 2003 RDT&E, N PROJECT COST ANALYSIS **DATE: FEBRUARY 2002**

BUDGET ACTIVITY: 7 **PROGRAM ELEMENT: 0303109N** **PROJECT NUMBER: X9122**
PROGRAM ELEMENT TITLE: Satellite Communications (Space) **PROJECT TITLE: Advanced Wideband Sys**

D. (U) SCHEDULE PROFILE: N/A

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Support Cost/Management Services												
Engineering Studies	WX	SSCSD						1,000	10/02	CONT.	CONT.	
Engineering Studies	MIPR	MITRE						1,000	10/02	CONT.	CONT.	
Concept Exploration	COMPETITIVE OTA							3,000	TBD	CONT.	CONT.	
Program Management	TDL	PMTO						1,000	10/02			
Subtotal Support								6,000		CONT.	CONT.	
Remarks:												

Total								6,000		CONT.	CONT.	
Remarks:												

EXHIBIT R-2, FY 2003 RDT&E,N BUDGET ITEM JUSTIFICATION

DATE: February 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0303140N
PROGRAM ELEMENT TITLE: Information Systems Security Program (ISSP)

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY2006	FY2007	TOTAL COMPLETE	TOTAL PROGRAM
X0734 Information Systems Security	30,277	24,190	15,453	19,476	20,571	20,351	20,611	CONT.	CONT.
R0734* Information Assurance			2,983	3,059	3,128	3,202	3,277	CONT.	CONT.
X2987**Intelligent Agent Security Module		2,478						CONT.	CONT.
TOTAL	30,277	26,668	18,436	22,535	23,699	23,553	23,888	CONT.	CONT.

*** Project Unit starting in FY03 for Office of Naval Research (ONR)**
**** FY02 Congressional Plus-up for Intelligent Agent.**

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The goal of the Navy Information Systems Security Program (ISSP) is to ensure the continued protection of Navy and Joint information and information systems from hostile exploitation and attack. The ISSP is the Navy's implementation of statutory and regulatory requirements specified in Presidential Decision Directive 63, the Computer Security Act of 1987 (Public Law 100-235), Appendix III of Office of Management and Budget (OMB) Circular A-130, and DOD Directive 5200.28. ISSP activities address the triad of Defensive Information Operations defined in Joint Publication 3-13; protection, detection, and reaction. Evolving detection and reaction responsibilities extend far beyond the traditional ISSP role in protection or Information Security (INFOSEC). Focused on the highly mobile forward-deployed subscriber, the US Navy's adoption of Network-Centric Warfare (NCW) places demands upon the ISSP, as the number of users explodes and the criticality of their use escalates. Today, the ISSP protects an expanding core service critical to the effective performance of the Navy's mission.

(U) The interconnectivity of Naval networks, attachment to the public information infrastructure, and their use in modern Naval and Joint war fighting means that the Naval Information Infrastructure (NII) is a higher value and more easily attainable target. An adversary has a much broader selection of attack types from which to choose than in the past. In addition to the traditional attacks that involve the theft or eavesdropping of information, USN information systems face advanced attacks involving malicious changes to critical information, changes to the functioning of critical systems, denial of service, and the destruction of systems and networks. Since many Navy

information systems are based on commercially available technologies, an adversary often has access to the very technologies they want to exploit.

(U) The rapid rate of change in the underlying commercial and government information infrastructures makes the provision of security an increasingly complex and dynamic problem. ISSP provides the Navy's war fighter the essential information trust characteristics of availability, integrity, authentication, privacy, and non-repudiation. Information Assurance (IA) technology mix and deployment strategies must evolve quickly to meet the rapidly evolving threats and vulnerabilities. No longer can information security divorce the information infrastructure.

(U) The Navy ISSP RDT&E program works to provide the Navy with these essential IA elements: (1) Assured separation of information levels and user communities, including coalition partners; (2) Assurance of the telecommunications infrastructure; (3) Assurance of Joint user enclaves, using a Defense in Depth architecture; (4) Assurance of the computing base and information store; and, (5) Supporting assurance technologies, including a Public Key Infrastructure (PKI) and directories. The goal of all ISSP RDT&E activities is to produce the best USN operational system that can meet the certification and accreditation requirements outlined in DOD Instruction 5200.40. Modeling DOD and commercial information systems evolution (rather than being one-time developments), the ISSP RDT&E program must be predictive, adaptive, and technology coupled. The program develops frameworks, architectures, and products based on mission threats, information criticality, exploitation risks, risk management, and integrated Joint information system efforts.

(U) All ISSP RDT&E efforts comply with the National Technology Transfer and Advancement Act of 1995 (Public Law 104-113) as implemented through Office of Management and Budget Circular A-119 of February 10, 1998, DoD Instruction 4120.24, *Defense Standardization Program (DSP),* and DoD Instruction 4120.3-M*, Defense Standardization Program Policies and Procedures*. The predominant commercial standards bodies in ISSP-related matters include International Standards Organization (ISO), American National Standards Institute (ANSI), Institute of Electrical and Electronics Engineers (IEEE), Internet Engineering Task Force (IETF), World Wide Web Consortium (W3C), and National Institute of Standards and Technologies (NIST). The Joint interoperability required in today's telecommunications systems makes standards compliance a must. During meetings held with OPNAV N64 in March 2001, the ISSP established a revised goal and objective set that resulted in the creation of the Mission Capability Teams (MCT). This resulted in reorganization of the ISSP budget structure which facilitates the continuance of ISSP RDT&E efforts.

(U) The interconnection of USN and the National Information Infrastructure (NII) requires all ISSP RDT&E activities to adopt a minimum standard of "best commercial IA practice." The ISSP RDT&E program examines commercial

technologies to determine their fit within the USN architectures, provides feedback to vendors about what the Navy requires, and participates in the standards bodies themselves. When necessary to protect mission critical systems specified in Clinger/Cohen Act, the ISSP RDT&E develops or tailors commercial technologies, standards, and processes to meet Navy-unique requirements; prototypes systems or portions of systems and examines their utility in operational Navy settings; and, provides IA expertise and engineering to Navy and Joint information system developments. All ISSP technology development efforts solve specific Navy and Joint IA problems using techniques that speed transition to procurement as soon as ready.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

B. (U) CHANGE SUMMARY EXPLANATION:

(U) FY 2001: +$8,600K Congressional Plus-up for PKI; +$2,000K Congressional Plus-up for NIASM; -$225K Section 8086 .7% ProRata Reduction; -$70K .22% Rescission; -$392K SBIR assessment; -$712 June 2001 BTR; and -$454K Navy miscellaneous adjustments.

(U) FY 2002: +$3,486K Adjustment for EKMS Tier 1; -$216K Section 8123 Management Reform Initiative; -$22K Section 8032 FFRDC.

(U) FY 2003: N/A

(U) Schedule: The EKMS schedule has slipped 6 months due to complex interoperability issues encountered during integration testing. Revised EKMS IOC date is 15 Jun 02, with Final Operational Capability (FOC) 22 Oct 02.

(U) Technical: N/A

EXHIBIT R-2a, FY 2003 RDT&E,N PROJECT JUSTIFICATION

DATE: FEBRUARY 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0303140N PROJECT NAME: ISSP
PROGRAM ELEMENT TITLE: Information Systems Security Program (ISSP) PROJECT NUMBER: X0734

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY2006	FY2007	TO COMPLETE	TOTAL PROGRAM
X0734 Information Systems Security	30,277	24,190	15,453	19,476	20,571	20,351	20,611	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Navy ISSP RDT&E program provides IA solutions for USN forward-deployed, highly mobile information subscriber. The Network-Centric afloat war fighter must rely upon an assured information infrastructure, and the ISSP RDT&E program architects, engineers, and provides the Quality of Assurance (QoA) consistent with risks faced. The ISSP addresses engineering design, development, modeling, test, and evaluation for the unique IA challenges associated with the highly mobile, dispersed, bandwidth limited, and forward-tactical connected USN communications systems.

(U) ISSP RDT&E must work closely within the Navy's Information Operations – Exploit (Signals Intelligence - SIGINT) and Information Operations – Attack (INFOWAR) communities. ISSP RDT&E developed systems must dynamically change the Navy's current assurance vector, based upon operational indications and warnings. To ensure interoperability, ISSP RDT&E must integrate fully with the Maritime Cryptologic Architecture. ISSP RDT&E developed systems can provide the trigger for offensive warfare activities, such as those developed by the Naval Information Warfare Activity (NIWA).

(U) This program element includes a rapidly evolving design and application engineering effort to modernize National-Security-grade (type-1) cryptographic equipment and ancillaries with state-of-the-art replacements in order to counter evolving and increasingly sophisticated threats. Communication Security (COMSEC) and Transmission Security (TRANSEC) evolution is from stand-alone dedicated devices to embedded modules incorporating National Security Agency (NSA) approved cryptographic engines, loaded with the certified algorithms and key, and interconnected via industry-defined interfaces.

(U) In addition to protecting National Security information, ISSP RDT&E must provide enterprise-wide assurance for statutorily protected information under the Privacy Act of 1974, Computer Matching and Privacy Protection Act of 1988, Medical Records Confidentiality Act of 1995, Model State Public Health Privacy Act, 45 CFR subtitle A sub-chapter C, parts 160- 164, 1999, and the Federal Education Records Privacy Act. ISSP RDT&E efforts must also provide

assurance to the broad spectrum of Sensitive-but-Unclassified (SBU) information such as financial, personnel, contractor proprietary, and procurement sensitive.

(U) The ISSP today includes much more than legacy COMSEC, Computer Security (COMPUSEC), and Network Security (NETSEC) technology. IA, or Defensive Information Operations, exists to counter a wide variety of threats in a Navy environment. ISSP activities cover all telecommunications systems, and RDT&E projects must provide protection, detection, and reaction capabilities to the operational commander. ISSP RDT&E provides dynamic risk managed IA solutions to the Navy Information Infrastructure, not just security devices placed within a network.

(U) Few technology areas change as fast as telecommunications and computers, and IA must keep pace. This results in the continuing need to evaluate, develop, and/or test IA products and approaches. Technology base efforts include developing or applying: (1) new secure voice prototypes; (2) technology for a new family of programmable COMSEC and TRANSEC modules; (3) security appliances and software for switched and routed networks; (4) technology to interconnect networks of dissimilar classification, as either Multiple Security Level (MSL) or Multi-Level Security (MLS); (5) techniques for assuring code and data residing in and transiting the Navy's computing base and information store; and (6) PKI and associated access control technologies (such as SmartCards and similar security tokens).

(U) The resulting expertise applies to a wide variety of Navy development programs that must integrate IA technology. Unlike traditional single-product development programs, the ISSP RDT&E holds a unique Navy-enterprise responsibility outlined in SECNAVINST 5239.3.

(U) The ISSP RDT&E efforts must conclude with certified and accredited systems. This requires (1) Assured separation of information levels and user communities, including coalition partners; (2) Assurance of the telecommunications infrastructure; (3) Assurance of Joint user enclaves; (4) Assurance of the computing base and information store; and, (5) Supporting assurance technologies, including PKI and directories. To ensure interoperability and commercial standards compliance, these efforts often encompass the research, selective evaluation, integration, and test of Commercial off-the-shelf (COTS)/Non-developmental Item (NDI) IA security products. For example, evaluation may include defensible network boundary capabilities such as firewalls, secure routers and switches, guards, Virtual Private Networks (VPN), and misuse and network intrusion detection (IDS).

(U) The current operating environment has virtually eliminated the traditional distinction between telecommunications and information systems. Because IA is a cradle-to-grave enterprise-wide discipline, this

program develops the technology and methodology to systems in development, production and operation, and develops the infrastructure needed to support and evaluate the security of deployed systems.

(U) The following describes several major ISSP technology areas:

(U) Under the Navy Secure Voice (NSV) program, ISSP RDT&E assesses technology to provide high grade, secure tactical and strategic voice connectivity.

(U) Under the Navy Security Management Infrastructure (SMI) program, ISSP RDT&E develops, evaluates, and applies new emerging technology and enhanced capabilities to the Electronic Key Management System (EKMS) and other Navy Information Systems. Additional efforts will focus on the architecture, design, and development of systems to manage the security parameters (i.e., cryptographic keys) necessary to the operation of the systems developed by the Secure Data and Secure Voice portions of the ISSP. This includes the application of PKI and Certificate Management Infrastructure (CMI) technology, and the development of improved techniques for key and certificate management to support emerging, embedded cryptographic technology.

(U) Under the Secure Data program, efforts focus on architectures, designing, acquiring, demonstrating and integrating the IA technologies into Navy distributed information systems (e.g., Information Technology for the 21st Century (IT-21), new total ship computing environments, and the Navy Marine Corp Intranet (NMCI). This portion of the ISSP supports delivery of network security engineering expertise needed to stand-up the NMCI and securely deploy IT-21 constituent systems such as Advanced Digital Network System (ADNS), Global Command and Control System - Maritime (GCCS-M) and Base Level Information Infrastructure (BLII). It includes activities to:

- Ensure that USN IA systems and networks follow a consistent architecture and are protected against denial of service.
- Ensure that all data within the USN Enterprise is protected in accordance with its classification and mission criticality.
- Provide the ability to protect from, react to, and restore operations after an intrusion or other catastrophic event.
- Enable dynamic throttling of services due to change in risk posture resulting from changing Information Operation Conditions (INFOCONs).
- Defend against the unauthorized modification or disclosure of data sent outside enclave boundaries.
- Provide a risk-managed means of selectively allowing essential information to flow across the enclave boundary.
- Provide strong authentication of users sending or receiving information from outside their enclave.
- Defend against the unauthorized use of a host or application.

•Maintain configuration management of all hosts to track all patches and system configuration changes.
•Ensure adequate defenses against subversive acts of trusted people and systems, both internal and external.
•Provide a cryptographic infrastructure that supports key, privilege and certificate management; and that enables positive identification of individuals utilizing network services.
•Provide an intrusion detection, reporting, analysis, assessment, and response infrastructure that enables rapid detection and reaction to intrusions and other anomalous events, and that enables operational situation awareness.

1. (U) FY 2001 ACCOMPLISHMENTS:

(U) ($2,081) Completed initial development of architecture and preliminary design specifications for the digital modular cryptographic solution based on multi-channel, programmable technology. Validated candidate cryptographic replacement solutions (Blue sky/grey sky) for evaluation and assessment in representative Navy platforms, specifically VA class submarine. Continued support for the COMSEC certification process, including the conduct of analyses required and the development of associated documentation. These activities were coordinated with the National Security Agency.

(U) ($2,606) Continued the development of Electronic Key Management System (EKMS) Phase IV for Tier 1, Tier 2, Tier 3 and ensure compatibility with Tier 0. Completed the research and evaluation of several new key management technologies. Demonstrated prototype of the Navy Single Point Command, Control, and Keying ($NSPC^2K$) design and solution for Navy platforms. Completed several key design steps development of the Data Transfer Device (DTD) 2000, and provided key management support for embedded cryptographic technology and cryptographic replacement efforts.

(U) ($2,520) Completed US prototypes and quick-look evaluations related to the design, development, evaluation and application of PKI and CMI technologies and systems to support DoD and DON initiatives, including integration with shipboard network systems (IT-21) and the Navy Marine Corps Intranet (NMCI) initiatives. Established a new liaison office and promoted several demonstrations, working closely with the commercial developers and vendors. Demonstrated expansion of certificated based Virtual Private Networks (VPNs) security associations, specifically with Cisco VP gateways. Provided assessment of USN unique design requirements for application of biometric access control tokens (fingerprint, voiceprint and iris).

($8,600) This was a Congressional plus-up. Accelerated the design, development, evaluation and fielding of a PKI and CMI and the supporting infrastructure. Developed PKI applications and concepts as they related to afloat platforms to include evaluation of Medium Grade Services (MGS), Directory Services Testing (Single Sign On) and Hardware Cryptographic Modules (HCM). Conducted afloat demonstration of PKI on SIPRNET which encompassed use of Class 3 certificates, Local Registration Authority (LRA) support and formalized the process for introduction of PKI into IT-21 Afloat (Government Off-The-Shelf

(GOTS) Delta) deployment plan. Evaluated current PKI enabled applications to determine compatibility with DOD PKI certificates and investigate DOD policy and procedures required for enabling for PKI object signing certificates.

(U) ($1,971) Completed evaluations of several voice-sealed IP applications including assessment of several security solutions/capabilities for next generation voice systems. Continued research into new secure voice technology, developing technology and techniques for secure voice over government and commercial communications backbones, specifically addressing wire-line/wireless telephony and network applications applicable to strategic and tactical communications. Continued to develop and assess the technology for low data rate algorithms, voice compression technology in conjunction with cryptographic algorithm technology, and voice/speaker recognition.

(U) ($985) Continued development of Secure Voice-21 (SV-21). This included the development and integration of the crypto gateways (i.e., network interface card, crypto interface card, and the voice processing card), crypto replacement technology, the Navy Single Point Command, Control, and Keying ($NSPC^2K$) technology to support the embedded crypto replacements, and new voice algorithms (e.g., Mixed Excitation Linear Prediction (MELP). Demonstrated the SV-21 suite capability on a new ship operational platform for test and evaluation purposes.

(U) ($246) Continued USN representation to secure voice and biometric access consortia.

(U) ($739) Completed the first of several phases in the evolutionary development of security architectures for IA that include virtually all Navy distributed information system development programs. Completed support to Information Assurance demonstrations in Fleet Battle Experiments. Provided security engineering design and development assistance to other USN program offices, including major Navy and joint initiatives that are defining and building distributed systems including shipboard networks (IT-21), NMCI, the Joint Technical Architecture (JTA), and large development programs including GCCS-M, GCCS, DMS, ADNS, BLII, and others.

(U) ($3,272) Completed rollout and first technology refresh associated with major USN enclave security enclaves, such as at the Fleet Network Operating Centers. This included the examination and selection of next generation networking components required by the architectures that may include firewalls, intrusion detection systems (including host-based systems), virtual private networking systems, public key based secure e-mail and web systems, operating systems and others as well as high assurance components for connection of Top Secret and SCI systems to lower level systems. Completed initial architecture and initiated policy discussions supporting the design of situational awareness and visualization capabilities to support active computer network defense and the development of a sensor grid, with underlying data mining and correlation tools.

(U) ($2,000) This was a Congressional plus-up. Completed Small Business Research Initiative (SBIR) Phase 1 and awarded Phase 2 for a network wide Intrusion Detection System (IDS) (referred to as Naval Intelligent Agent Secure Module (NIASM)) which monitors existing sensors and devices to include Firewalls, Virtual Private Network (VPN) servers, and IDS's.

(U) ($2,464) Completed initial security engineering, Certification and Accreditation (C&A) support to Navy information system developments such as shipboard networks (IT-21) NMCI, JTA, and large development programs including GCCS-M, GCCS, DMS, ADNS, BLII and new ship construction (e.g., NSSN, LPD-17, and SCN-21).

(U) ($454) Provided INFOSEC standards and engineering guidance documents to several program offices. This ensured compliance with statutory requirements, including the FY01 Federal Information Security Act, ensuring that they are consistent with the security architecture, the rapidly changing technology, and the evolving threat.

(U) ($1,478) Completed evaluation of several prototype coalition interoperability and multi-level security solutions. Initiated security engineering support for the coalition cryptographic systems which are associated with battle Force E-mail 66. Conducted the US Navy's workshop on multi-level aware applications and technologies, including databases, web browsers, routers/switches, and workstations.

(U) ($811) Continued vulnerability/threat assessments and development and systems integration of network countermeasures tools (NVACM) efforts. Results of this effort are classified.

2. (U) FY 2002 PLAN:

(U) **SECURE VOICE ($594)** Secure Telecommunication – Internet Protocol (IP) Gateway/Inter-Working Function (IWF). Finalize development efforts for the production release of a secure voice IWF capability between Telecommunication and IP systems. Conduct demonstrations of the Secure Telecommunication – IP Gateway IWF capabilities over operational commercial and Navy communication systems for test and evaluation purposes. Support production readiness evaluation and environmental testing for new ship construction delivery. Finalize open system design requirements for the initial production specification release of Secure Voice 21 (SV-21) architecture.

(U) **SECURE VOICE ($990)** Tactical Secure Voice Internet Protocol Server IWF. Release Request for Proposal (RFP) for an Engineering Development Model (EDM) to support design and integration of tactical shipboard secure voice systems into the Secure Voice 21 (SV-21) architecture. Conduct laboratory demonstrations of secure voice interoperation between tactical crypto equipment and Voice over IP (VoIP) conversion capability. Evaluate VoIP technologies within fleet battle experiments over Non-classified IP Routed Network (NIPRNET) and Secret IP Routed Network (SIPRNET) to determine mission

critical throughput reliability and impacts on tactical enclave network configurations.

(U) **SECURE VOICE ($634)** Secure Voice over Wireless Technologies. From next generation secure voice studies conducted in FY 01, demonstrate and evaluate VoIP using the IEEE 802.11 standard for Wireless Ethernet Protocol (WEP). Conduct operational assessments on the applicability of digital cellular and hand-held satellite secure voice products within the Navy strategic and tactical communication environments.

(U) **SECURE VOICE ($609)** Advanced Secure Voice System Development. Continue the design, development and assessment of security solutions/capabilities for SV-21 architecture applicable to strategic and tactical communication integration. Conduct research on developing secure voice technologies and techniques for secure voice over government and commercial communications backbones, specifically addressing Asynchronous Transfer Mode (ATM) technology and voice over data network applications.

(U) **SECURE VOICE ($297)** Voice Processing and Biometric Access Consortia. Conduct exploratory research on digital voice processors and voice/speaker recognition technologies. Continue laboratory research on digital voice processing techniques to evaluate voice command and control communication suitability in tactical Navy operational environments. Develop and assess digital voice-processing techniques for low data rate, multi-rate, and variable rate voice processing algorithms. Support development of government and industry standards for digital voice processing technologies (e.g., Mixed Excitation Linear Prediction (MELP), in conjunction with joint cryptographic developments.

(U) **CRYPTO ($1,981)** Continue development of a digital modular cryptographic design solution based on multi-channel, programmable technology. Enter certification and accreditation (C&A) cycle with the National Security Agency (NSA) for first item Multipurpose Cryptographic Unit (MCU) that will replace aging cryptographic equipment where the USN is either the sole or lead user. Expand algorithm capability to Joint common legacy systems. Fully define the first 4 interface specifications, and prepare specification and request-for-proposal (RFP) for release. Support the Communications Security (COMSEC) equipment certification process, including the conduct of analyses required and the development of associated documentation. A new effort will be analysis and documentation required for software algorithm certification. These efforts will be fully coordinated with the National Security Agency.

(U) **NSS (Network Security Systems) ($1,599)** Continue developing and testing distributed IA solutions for Navy information systems. This includes the examination and selection of next generation IA components required by the architectures that may include firewalls, intrusion detection systems (including host-based systems), virtual private networking systems, public key based secure e-mail and web systems, operating systems and others as well as high assurance components for connection of Top Secret and sensitive compartmented information (SCI) systems to lower level systems.

EXHIBIT R-2a, FY 2003 RDT&E,N PROJECT JUSTIFICATION

DATE: FEBRUARY 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0303140N PROJECT NAME: ISSP
PROGRAM ELEMENT TITLE: Information Systems Security Program (ISSP) PROJECT NUMBER: X0734

Examine, evaluate, and demonstrate next generation network security appliances, specifically focusing on increasing performance rates to Optical Carrier Rate 12 (OC-12 = 622.08 Million Bits per Second (Mbps)) and greater. Continue to support the design of situational awareness and visualization capabilities to support active computer network defense and the development of a sensor grid, with underlying data mining and correlation tools. Develop capability to remotely manage and securely control the configurations of network security components to implement changes in real time or near real time. Continue to prototype components at selected operational sites.

(U) **NSS ($1,188)** Work toward the Defense Advanced Research Projects Agency (DARPA) sponsored Common Intrusion Detection framework (CIDF) object model. Conduct experiment and prepare protection profile for Fleet Enclave boundary with intrusion detection system (IDS) driven auto-responding security policy. Continue integration of USN deployed afloat and ashore network security systems into the Joint (Commander-in-Chief Space Command (CINCSPACE), Joint Task Force – Computer Network Defense (JTF-CND)) IA common operating picture (IA-COP). Demonstrate the ability to share common IA enclave protection profiles definitions in response to Information Operations Condition (INFOCONs). Expand activities of the Fleet Information Warfare Center (FIWC) IDS correlation process, Navy Component Task Force – Computer Network Defense, and the unification of the USN enterprise network operational status with the currently separate IA alarm status. Continue to explore IDS alternatives to existing USN deployed pattern-recognition-based intrusion detection systems. Continuing tasks include: (1) expanding IDS requirements, to address detection of both network misuse and intrusion, (2) market survey of emerging agent and other sensor based IDS products, focusing on CIDS Framework standards, (3) defining architectures that optimize IDS monitoring while minimizing sensor count, (4) mobile subscriber, forward deployed and shipboard IDS techniques and products, (5) native Asynchronous Transfer Mode (ATM), Signaling System Seven (SS7), sensors and alarm definitions, (6) workstation (personal) IDS techniques and products, and (7) build upon IDS capabilities included in existing commercial-off-the-shelf operating systems. Working closely with the National Security Agency (NSA) and the Naval Information Warefare Activity (NIWA), develop electronic infrastructure defense rules of engagement (ROE) that maximize the probability of protection mission success. Tasks include: (1) defining potential rules of engagement for automatic response to attack, (2) modeling and war gaming of auto-defend and manual-defend scenarios, (3) optimal selection of methods, (4) Command, Control, Computers, Communications, and Intelligence (C4I) support plan, (5) battle damage assessment plan, and (6) assessment modeling of impact to overall USN enterprise. Response capabilities include localized automatic and manual defensive and authorized active engagement. Includes the ability to quantitatively describe attack recovery (fratricide and hostile).

(U) **MSL (Multiple Security Level) ($129)** Use current Navy INFOSEC/IA problems (to include network security, multi-level security (MLS), public key infrastructure (PKI), tokens, biometrics, intrusion detection and reaction) as the basis for case studies, laboratory work and student thesis research efforts. Based on continuing research, act as a focal point within DoN for advanced education in INFOSEC/IA by creating new and innovative course materials addressing foundational

issues in IA, INFOSEC and Computer Security (COMPUSEC). This effort should reflect the cumulative, and most recent, developments from IA theory and practice.

(U) **MSL ($1,167)** Continue to design, develop, and prototype coalition interoperability and multi-level security solutions. Base the solutions on available multilevel security technologies as well as emerging architectural methods of providing interoperability across different security levels. Continue to examine multi-level aware applications and technologies including databases, web browsers, routers/switches, etc.

(U) **NSS ($1,782)** Continue the evolutionary development of security architectures for IA that include virtually all Navy distributed information system development programs. Ensure the architectures evolve to provide proper protection as technology, DOD missions, and the threat all evolve. Provide inputs to the major Navy and joint initiatives that are defining and building distributed systems including shipboard networks (IT-21), Navy Marine Corps Intranet (NMCI), the Joint Technical Architecture (JTA), Global Command and Control System – Maritime (GCCS-M), Global Command and Control System (GCCS), Defense Messaging System (DMS), Automated Digital Network System (ADNS), Base Level Infrastructure Improvement (BLII), and others. Include both defensive protections as well as intrusion monitoring in the architecture. Continue IA engineering, product selection assistance, and certification and accreditation support to Navy information system developments such as shipboard networks IT-21, NMCI), JTA, GCCS-M, GCCS, DMS, ADNS, BLII new ship construction (e.g. (NSSN, LPD-17, SCN-21…), Maritime Cryptologic System for the 21st Century (MCS-21), and others. Ensure IA integration as early in the development process as possible. Focus on integration of the proper functions to ensure adherence to the common security architectures. Ensure that the security and performance of the tactical systems, including those operating at Top Secret and at sensitive compartmented information (SCI) are consistent with Navy and DOD requirements.

(U) **NSS ($990)** Prepare and test lab model of a common criteria transition program that moves existing USN IA products and architectures to the newly required Common Criteria certified products and architectures, as published in March 2000 by the National Security Telecommunications and Information Systems Security Committee (NSTISSC), publication National Policy Governing the Acquisition of IA and IA-Enabled Information Technology Products" (NSTISSP No. 11).

(U) **CA (Certification and Accreditation) ($495)** Continue vulnerability/threat assessments and development and systems integration of network countermeasures tools (NVACM) efforts.

(U) **CA ($594)** Begin a consolidated computing base and data store vulnerabilities program. Focus this year activities to secure delivery of tactical/command mobile code. Include the common DoD used forms of computer operating systems and mobile code. Tasks include (1) expansion of techniques to other operating systems, including public and private operating

systems, (2) trusted code delivery, (3) enclave mobile code repository, (4) database entry assurance, and (5) other emerging uses and users. Build configuration guidance for server-to-server trust relationships.

(U) **NSS ($446)** Conduct unclassified wireless local area network (LAN) products program testing and prepare protection profile for shipboard, office, and limited field use. Tasks include: (1) vulnerability testing of several common products (such as specifically within USN architectures), (2) security issues related to distributed antenna distribution within command centers and large offices, (3) configuration guidance for general use of the Wired Equivalent Privacy (WEP) protocol, and (4) complete a protection profile for "Wireless Network devices (access points and clients) used on Unclassified Networks."

(U) **NSS ($456)** Continue developing and updating IA standards and engineering guidance to ensure they are consistent with the security architecture, the rapidly changing technology, and the evolving threat. Emphasis is on the paralleling of USN IA guidance to match the overall DoD Information Assurance Technical Framework (IATF). This includes rapid guidance publication in response to Fleet-demanded new technologies, usually several years prior to release of a CC protection profile. Work closely with Naval Postgraduate School to define a working set of IA metrics applicable to the USN enterprise. Goal is to work toward a Quality of IA value that is quantitative in nature, measurable, and optimizable. Tasks include: (1) defining current IA state vectors, (2) defining cost values, (3) defining reliability values, (4) defining availability values, (5) defining the Quality of IA value as stochastic model, and enterprise implementation modeling and measurements.

(U) **NSS ($495)** Prepare protection profile for current Fleet enclave and shipboard security architectures for IA that include virtually all Navy distributed information system development programs. Continue refining an overall USN-wide enclave boundary policy - expanding upon OPNAV N64 USN firewall policy into a comprehensive mobile subscriber enclave IA plan. Ensure the architectures evolve to provide proper protection as technology, DOD missions, and the threat all evolve. Provide inputs to the major Navy and joint initiatives that are defining and building distributed systems including shipboard networks (IT-21), the Navy Marine Corps Intranet (NMCI), the Joint Technical Architecture, Maritime Cryptologic Architecture, and large development programs including Global Command and Control System – Maritime (GCCS-M), Global Command and Control System (GCCS), Defense Messaging System (DMS), Automated Digital Network System (ADNS), Base Level Infrastructure Improvement (BLII)and others. Specific tasks include: (1) technical requirements development, (2) architecture and campaign plan preparation, (3) policy framework documentation, (4) application to surface, subsurface, air, and first-ashore forces maintaining connectivity to shipboard and ashore networks, and (5) coordination with Fleet components.

(U) **NSS ($1,305)** Conduct a detect-respond experiment as part of a Fleet Battle Experiment in support of the Joint Task Force – Computer Network Defense (JTF-CND) and the Navy Component Task Force – Computer Network defense (NCTF-CND). Working closely with the National Security Agency and the Naval Information Warfare Activity, field a test model of the electronic infrastructure that implement defense rules of engagement (ROE) that maximize the probability of protection mission success. Tasks include: (1) defining potential rules of engagement for automatic response to attack, (2) modeling and war gaming of auto-defend and manual-defend scenarios, (3) optimal selection of methods, (4) Command, Control, Computers, Communications, and Intelligence (C4I) support plan, (5) battle damage assessment plan, and (6) assessment modeling of impact to overall USN enterprise. Response capabilities include localized automatic and manual defensive and authorized active engagement. Includes the ability to quantitatively describe attack recovery (fratricide and hostile).

(U) **CA ($396)** Update the methods and tools for the afloat certification and accreditation (C&A) red-team. Revise experimental model, and understand network performance impacts. Formalizes the experimental model based upon OPNAV red-team goals. Establishes firm statistical model for team data gathering. Tasks include: (1) experimental model, including statistical estimation moment minimum values, (2) defining statistical methods, including random selection regime, (3) population definition, (4) data collection method and common worksheet, and (5) statistical analysis framework.

(U) **CRYPTO ($5,433)** Complete the development of Electronic Key Management System (EKMS) Phase IV for Tier 1, Tier 2, Tier 3 and ensure compatibility with Tier 0. Continue to research and investigate new key management technologies. Demonstrate web-based technology and exchange capabilities. Demonstrate integration of certificate management and key management directory structures and workstation functions. Demonstrate prototype of the Navy Single Point Command, Control, and Keying ($NSPC^2K$) design and solution for Navy platforms. Continue to support development of the DTD 2000, and continue to provide key management support for embedded cryptographic technology and cryptographic replacement efforts. Conduct laboratory assessments of the latest NSA and commercial-off-the-shelf key management technology and products. Provide system security, certification, and accreditation (C&A) engineering and testing for key management components and systems.

(U) **CRYPTO ($778)** Conduct analysis for Data Transfer Device (KOV-21), Single Point Keying, Netted Re-keying and Modular KOK-22 development. Conduct Security Testing, engineering and integration analysis for EKMS.

(U) **CRYPTO ($990)** Continue the design, development, evaluation and application of class 4 and 5 public key and certificate management infrastructure technologies and systems to support DoD and DON initiatives, including integration with IT-21 and other new ship initiatives. Continue to work closely with the commercial developers and vendors, infuse technology and requirements into the commercial products, and support efforts to PKI-enable specific applications. Continue to evaluate, assess, integrate and demonstrate related technologies including smart card security tokens and virtual private networks (VPNs).

(U) **CRYPTO ($248)** Begin key management architecture for forward-deployed tactical and shipboard "lights-out" or minimal crew communications centers. This includes architectures for platforms such as DD-21 and VA-Class submarines. The architectures and interfaces of systems such as Electronic Key Management System (EKMS), public key management (PKI), and certificate management infrastructure (CMI) must be analyzed to determine how isolated automated systems can be used to handle electronic keying, authentication, and code confirmation tasks.

(U) **SECURE VOICE ($297)** Prepare protection profile and specifications for gateway to Secure Terminal Equipment (STE) /Secure Telephone Unit Third Generation (STU-III) Public Switched Telephone Network (PSTN) and Integrated Services Digital Network (ISDN) gateway keying system requirements. Establish architecture for user keying and access.

(U) **CRYPTO ($297)** Prepare protection profile and define key management architecture for secure wireless Ethernet local area network (LAN).

3. (U) FY 2003 PLAN:

U) **SECURE VOICE Communication Mission Capability Team**

(U) Crypto Mission Capability Team - Cryptographic Equipments and Security Management Infrastructure -

(U) $4,517) Continue to provide cryptographic products, including type-1 US only, allied and coalition, and commercial-off-the-shelf. Includes design, development, testing, and evaluation of link, network, session, data transfer devices, and associated equipments. Includes design, integration, and testing of new cryptographic modules, USN-unique and USN-lead-service high-assurance algorithm software development, module hotel support, and protocol and control interface functions. Provides engineering design evolution for the supporting key management infrastructure, including the Electronic Key management System (EKMS Phase IV for Tier 0,1,2,3), Defense Messaging System (DMS) specific products, the DOD Public Key Infrastructure (DOD-PKI), and additional Certificate Management Infrastructures (CMI). Includes design, evaluation, integration, and testing of key-related platforms, such as smart cards, and authentication mechanisms, such as biometric devices. Provides systems security engineering, test, evaluation, and development program support for organizations utilizing cryptographic equipments and associated keying systems. Provides continuous development coordination with the DoD PKI program office, the DON Smart Card office, the US Army biometrics program office, and the Information Systems Security Office at the National Security Agency. Provides specific design, testing, and evaluation assistance for new USN platforms and assists in defining embedded cryptographic product engineering requirements.

Includes development, modeling, testing, and deployment evaluation of architectures supporting next-generation structures such as remote-keyed, gateways, "lights-out" facilities, and wireless devices. Includes architecture modeling, end-to-end security analysis, and integration cryptographic products into USN platform specific architectures. This year's efforts expand to cover increased support for embedded cryptographic products in DD(X), JCCX, and JTRS.

(U) Network Security Mission Capability Team -

(U) $7,427) Continue to provide the broadest range of Information Assurance research across Joint, Fleet, and ashore networks. Applications include unclassified through TOP SECRET networks, while closely coordinating with TOP SECRET/SCI network requirements to ensure the broadest common solution. Provides design and evaluation for improved security product performance to accommodate higher speeds, more complicated architectures, and the ever-increasing threat. Focus becomes more and more on risk management approaches against state-sponsored network attack while preventing the nuisance disruption caused by the computer hacker community. Includes close work, design review, and operational testing with the Fleet CINCs to ensure that the IA infrastructure is available to enforce evolving critical infrastructure protection policies, including support for Fleet Battle Experiments and other short-reaction demonstrations.

Major emphasis includes early security design engineering of new ships, aircraft, and submarines to ensure that the reduced manning and greater operational dependency on networks. Provides for systems security engineering design, modeling, technical evaluations and designs, testing design and validation, and continuing COTS and GOTS evaluations and recommendations. Coordinates integration of secure design, testing, and products into new platforms and systems.

(U) Design, modeling, and testing efforts are closely coordinated with the Joint Task Force – Computer Network Defense, the Defense Advanced Research Projects Agency, the new Commander, Naval Task Force – Navy Marine Corps Intranet, Commander, Naval Security Group Command, and the Fleet Information Warfare Center. Works design architectures and evaluation methods through the Information Assurance Technical Framework forum, the Internet Engineering Task Force, and other Information Assurance organizations.

(U) For the first time, ISSP is applying IA engineering design, evaluation, and testing techniques from end-to-end, through base-band networks, RF communications links, and information source-to-sink to satisfy the IA element of maintaining availability. Includes Information Assurance appliances, software, and implementation techniques for policies such as IAVA requirements, INFOCON response, and USN firewall policy. This requires close engineering coordination with Information Operations activities, Exploit and Attack, to ensure coordination and fratricide prevention, network or RF path based. It includes engineering modeling and design of systems used in the isolation of network intrusion or attack from degradation caused by electromagnetic interference (EMI/RFI).

(U) Multiple Security Level Mission Capability Team -

(U) ($880) This is a major Fleet and Unified Command interest area. Involves application of all ISSP R&D toward the solution of shared networks, shared computing base, and information release to US allies and coalition partners, including Partners for Peace. Includes design engineering and application of new technologies that ensure rapid collaboration and strike execution. Includes security applications associated with shared RF paths, such as Battle Force E-mail 66, and support for multinational networks. Provides systems security engineering development, testing, and evaluation, including complicated evaluations involving allied and coalition participation. Solutions developed will address operator interface, computing and storage, peripherals, access control and credentials, local area networks appliances, wide area networks appliances, and unique IA sensors. Involves substantial efforts ensuring interoperability across commercial and government standards. Includes engineering of voice encoding standards ensuring interoperability between US and allied/coalition voice products. Includes integration of security requirements in the next generation Universal Mobile Telephone services, Generation 3.

(U) Information Assurance Readiness-Certification and Accreditation Mission Capability Team -

(U) ($2,629) Provide systems security engineering support to all USN organizations in the certification and accreditation of information systems. A primary responsibility is the C&A for the Navy Marine Corps Intranet and various coalition networks. Involves work with all delivering USN systems to ensure secure networks before operational testing. C&A activities include networks, applications, sensors, and databases. Supports the Fleet Information Warfare Center (FIWC), the Naval Security Group Activity Pensacola, and the CTF-NMCI for continuing CNVA activities. Includes the development and maintenance of USN infrastructure security policy. Includes systems security engineering, testing, and evaluation supporting other organizations during development of the Systems Security Accreditation Agreement (SSAA) and supporting activities of the Certification Authorities and Designated Accreditation Authorities during the DoD Information Technology Security Certification and Accreditation Process (DITSCAP). Includes development of network countermeasures tools (NVACM), in close coordination with the Naval Information Warfare Activity. Supports development of validation methods, including tools provided to the USN RED TEAMs and NMCI contract SLA validation teams.

B. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM

EXHIBIT R-2a, FY 2003 RDT&E,N PROJECT JUSTIFICATION

DATE: FEBRUARY 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0303140N PROJECT NAME: ISSP
PROGRAM ELEMENT TITLE: Information Systems Security Program (ISSP) PROJECT NUMBER: X0734

COMPLETE PROGRAM:

(U) OPN 3415 Information Systems Security Program (ISSP)

64,216	86,822	78,473	61,800	34,637	50,992	49,466	CONT.	CONT.

(U) O&MN 4A6M

17,534	19,983	20,344	19,287	14,895	13,940	14,302	CONT.	CONT.

(U) RELATED RDT&E:
(U) PE 0303140G
(Cryptographic Equipments)

C. ACQUISITION STRATEGY

	FY 2001	FY 2002	FY2003	To Complete
EKMS				
Program Milestones		3Q-Tier 1 IOC	1Q-Tier 1 FOC	
Engineering Milestones				
T&E Milestones		1Q-Tier 1 Government Acceptance Test (GAT)		
Contract Milestones				

EXHIBIT R-3, FY 2003 RDT&E,N COST ANALYSIS

DATE: FEBRUARY 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0303140N PROJECT NAME: ISSP
PROGRAM ELEMENT TITLE: Information Systems Security Program (ISSP) PROJECT NUMBER: X0734

Exhibit R-3 Cost Analysis (page 1)												Date: FEBRUARY 2002
APPROPRIATION/BUDGET ACTIVITY: 7			PROGRAM ELEMENT: 0303140N									PROJECT NAME AND NUMBER: ISSP (X0734)
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
SOFTWARE DEVELOPMENT	CPAF	SAIC	29,597	233	03/01	3,047	12/01			0	32,877	42,590
SOFTWARE DEVELOPMENT	WX	NRL-DC	0	0	N/A	0	N/A	67	10/02	Cont.	Cont.	Cont.
HARDWARE DEVELOPMENT	CPFF/	VIASAT	7,282	0		0				0	7,282	7,282
HARDWARE DEVELOPMENT	MIPR	MITRE	1,911	823	12/00	926	12/01	916	12/02	Cont.	Cont.	Cont.
HARDWARE DEVELOPMENT	CPAF	MOTOROLA	0	1,000	06/01	1,782	12/01	1,274	12/02	Cont.	Cont.	Cont.
HARDWARE DEVELOPMENT	VAR	VARIOUS	54,980	3,620	VAR	2,336	VAR	2,313	VAR	Cont.	Cont.	Cont.
Subtotal Product Development			93,770	5,676		8,091		4,570		Cont.	Cont.	Cont.
Remarks: SAIC target value of contract includes other services' funding (ARMY RDT&E).												
SYSTEMS ENGINEERING	VAR	VAR	2,976	17,474	VAR	12,484	VAR	7,482	VAR	CONT.	CONT.	CONT.
Subtotal Support			2,976	17,474		12,484		7,482		CONT.	CONT.	CONT.
Remarks												

EXHIBIT R-3, FY 2003 RDT&E,N COST ANALYSIS

DATE: FEBRUARY 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0303140N PROJECT NAME: ISSP
PROGRAM ELEMENT TITLE: Information Systems Security Program (ISSP) PROJECT NUMBER: X0734

Exhibit R-3 Cost Analysis (page 2)										Date: February 2002		
APPROPRIATION/BUDGET ACTIVITY: 7			PROGRAM ELEMENT: 0303140N							PROJECT NAME AND NUMBER: X0734		
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
TEST AND EVALUATION	VAR	VAR		6,561	VAR	3,232	VAR	3,200	VAR	CONT.	CONT	CONT.
Subtotal T&E				6,561		3,232		3,200		CONT.	CONT.	CONT.
Remarks												
PROGRAM MGMT SUPPORT	VAR	VARIOUS	3,936	566		383		201				
Subtotal Management			3,936	566		383		201		Cont.	Cont.	Cont.
Remarks												
Total Cost			100,682	30,277		24,190		15,453		Cont.	Cont.	Cont.

EXHIBIT R-3, FY 2003 RDT&E,N COST ANALYSIS

DATE: FEBRUARY 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0303140N PROJECT NAME: ISSP
PROGRAM ELEMENT TITLE: Information Systems Security Program (ISSP) PROJECT NUMBER: R0734

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY2006	FY2007	TO COMPLETE	TOTAL PROGRAM
R0734* Information Assurance	0	0	2,983	3,059	3,128	3,202	3,277	CONT.	CONT.
Total	0	0	2,983	3,059	3,128	3,202	3,277	CONT.	CONT.

* Project Unit starting in FY03 for Office of Naval Research (ONR)

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This PE includes funds for advanced technology development, test and evaluation of naval information systems security based on leading edge technologies that will improve information assurance (IA) situational awareness and information infrastructure protection across all Command echelons from the Commander in Chief (CINC) to tactical units afloat and warfighters ashore. This effort will demonstrate a secure capability for building, maintaining, and administering a seamlessly interoperable, common operational environment of networked information systems in the battlespace and for monitoring and protecting the information infrastructure from malicious activities. This effort will thereby provide Naval Forces a secure capability and basis in its achievement of reliable self-synchronization, protection from unauthorized access and mis-use, and optimized IA resource allocations in the information battlespace. The Naval Information Systems Security Program (ISSP) is supportive of the Future Naval Capabilities (FNCs) including the Knowledge Superiority and Assurance (KSA) FNC. Advanced technologies to be developed, tested, evaluated, integrated, and demonstrated include multi-level security-aware applications and technologies, and automated tools for expediting the IA certification process of software, embedded software, and architectures.

(U) A Memorandum of Agreement (MOA) was signed in FY01 between the Office of Naval Research Department of Information, Electronics & Surveillance (ONR31) and Office of the Chief of Naval Operations, Directorate of Space, Information Warfare, Command and Control, Information Warfare Division (N64), and provides for interagency coordination with ONR, N64, and SPAWAR (PMW161) in pursuance of this effort.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

EXHIBIT R-3, FY 2003 RDT&E,N COST ANALYSIS

DATE: FEBRUARY 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0303140N PROJECT NAME: ISSP
PROGRAM ELEMENT TITLE: Information Systems Security Program (ISSP) PROJECT NUMBER: R0734

(U) FY 2001 ACCOMPLISHMENT: N/A

(U) FY 2002 PLANS: N/A

(U) FY 2003 PLAN:

(U) This Project under Program Element 0303140N is a restructuring with the transfer of responsibility from SPAWAR to ONR in FY 2003 for prototyping IA concepts.

(U) ($2,983) Continue to develop an Information Assurance (IA) common operating picture framework to enable integration of network security systems and providing IA situational awareness. Continue to develop distributed software prototypes for information assurance (IA) capable of remotely managing and securely controlling the configurations of network security components in real time or near real time. This includes firewall based technology, virtual private networking systems, operating systems, and others as well as high assurance components for connection of Top Secret to lower level systems. Continue to prototype IA coalition interoperability and multi-level security systems components, and to evaluate new technology for applicability towards other multiple security levels (MSL) and interoperability problems for distributed databases, web browsers, routers/switches, etc. Continue to develop, test, and assess concepts for certifying legacy and COTS technologies for Information Assurance (IA) according to the newly required Common Criteria certified products and architectures, as published in March 2000 by the National Security Telecommunications and Information Systems Security Committee (NSTISSC), publication “National Policy Governing the Acquisition of IA and IA-Enabled Information Technology Products" (NSTISSP No. 11).

B. (U) CHANGE SUMMARY EXPLANATION:
(U) FY 2003: N/A

C. (U) OTHER PROGRAM FUNDING SUMMARY: The Navy’s 6.1 program contributes to this effort.
(U) NAVY RELATED RDT&E:
(U) PE 0601153N (Defense Research Science)
(U) PE 0602235N (Common Picture Applied Research)
(U) PE 0602114N (Power Projection Applied Research)
(U) PE 0603235N (Common Picture Advanced Technology)
(U) NON-NAVY RELATED RDT&E:

D. ACQUISITION STRATEGY

EXHIBIT R-3, FY 2003 RDT&E,N COST ANALYSIS

DATE: FEBRUARY 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0303140N PROJECT NAME: ISSP

PROGRAM ELEMENT TITLE: Information Systems Security Program (ISSP) PROJECT NUMBER: R0734

E. SCHEDULE PROFILE: Not Applicable.

Exhibit R-3 Cost Analysis (page 1)												
APPROPRIATION/BUDGET ACTIVITY: 7		PROGRAM ELEMENT: 0303140N								Date: FEBRUARY 2002		
										PROJECT NAME AND NUMBER: ISSP R0734		
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
SOFTWARE DEVELOPMENT	WX	NRL-DC						2,983	10/02	CONT.	CONT.	CONT.
HARDWARE DEVELOPMENT	N/A	N/A										
Subtotal Product Development								2,983		CONT.	CONT.	CONT.
Remarks:												
SYSTEMS ENGINEERING												
Subtotal Support												
Remarks												

EXHIBIT R-3, FY 2003 RDT&E,N COST ANALYSIS

DATE: FEBRUARY 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0303140N PROJECT NAME: ISSP
PROGRAM ELEMENT TITLE: Information Systems Security Program (ISSP) PROJECT NUMBER: R0734

Exhibit R-3 Cost Analysis (page 2)													Date: February 2002
APPROPRIATION/BUDGET ACTIVITY: 7			PROGRAM ELEMENT: 0303140N										PROJECT NAME AND NUMBER:ISSP R0734
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract	
TEST AND EVALUATION													
Subtotal T&E													
Remarks													
PROGRAM MGMT SUPPORT													
Subtotal Management													
Remarks													
Total Cost								2,983		CONT.	CONT.	CONT.	

EXHIBIT R-2a, FY 2003 RDT&E,N PROJECT JUSTIFICATION

DATE: February 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0303140N PROJECT NAME: ISSP

PROGRAM ELEMENT TITLE: Information Systems Security Program (ISSP) PROJECT NUMBER: 2987

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY2006	FY2007	TO COMPLETE	TOTAL PROGRAM
X2987 Intelligent Agent Security Module		2,478						CONT.	CONT.
Total		2,478						CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This PE includes funds for advanced technology development, test and evaluation of naval information systems security based on leading edge technologies that will improve information assurance (IA) situational awareness and information infrastructure protection across all Command echelons from the Commander in Chief (CINC) to tactical units afloat and warfighters ashore. This effort will demonstrate a secure capability for building, maintaining, and administering a seamlessly interoperable, common operational environment of networked information systems in the battlespace and for monitoring and protecting the information infrastructure from malicious activities. This effort will thereby provide Naval Forces a secure capability and basis in its achievement of reliable self-synchronization, protection from unauthorized access and mis-use, and optimized IA resource allocations in the information battlespace. The Naval Information Systems Security Program (ISSP) is supportive of the Future Naval Capabilities (FNCs) including the Knowledge Superiority and Assurance (KSA) FNC. Advanced technologies to be developed, tested, evaluated, integrated, and demonstrated include multi-level security-aware applications and technologies, and automated tools for expediting the IA certification process of software, embedded software, and architectures.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

EXHIBIT R-2a, FY 2003 RDT&E,N PROJECT JUSTIFICATION

DATE: February 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0303140N PROJECT NAME: ISSP
PROGRAM ELEMENT TITLE: Information Systems Security Program (ISSP) PROJECT NUMBER: 2987

(U) FY 2001 ACCOMPLISHMENT: N/A

(U) FY 2002 PLAN:

(U) ($2,478) Congressional plus-up for Navy's Intelligent Agent Security Module (IASM). Continue research and development for Small Business Research Initiative (SBIR Phase 2) for a network wide Intrusion Detection System (IDS) (referred to as Naval Intelligent Agent Secure Module (NIASM)) which monitors existing sensors and devices to include Firewalls, Virtual Private Network (VPN) servers, and IDSs.

(U) FY 2003 PLAN: N/A

B. (U) CHANGE SUMMARY EXPLANATION:

(U) FY 2002: +$2,500K Congressional Plus-up for Navy Intelligent Agent Security Module (NIASM), -$22K Non-Pay Inflation.

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
COMPLETE PROGRAM:								
(U) OPN 3415 Information Systems Security Program (ISSP)								
64,216	86,822	78,473	61,800	34,637	50,992	49,466	CONT.	CONT.
(U) O&MN 4A6M								
17,534	19,983	20,344	19,287	14,895	13,940	14,302	CONT.	CONT.

(U) RELATED RDT&E:
(U) PE 0303140G
(Cryptographic Equipments)

D. ACQUISITION STRATEGY: N/A
E. SCHEDULE PROFILE: N/A

EXHIBIT R-2a, FY 2003 RDT&E,N PROJECT JUSTIFICATION

DATE: February 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0303140N PROJECT NAME: ISSP

PROGRAM ELEMENT TITLE: Information Systems Security Program (ISSP) PROJECT NUMBER: 2987

Exhibit R-3 Cost Analysis (page 1)												Date: FEBRUARY 2002
APPROPRIATION/BUDGET ACTIVITY: 7			PROGRAM ELEMENT: 0303140N									PROJECT NAME AND NUMBER: ISSP (X2987)
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
SOFTWARE DEVELOPMENT												
SOFTWARE DEVELOPMENT												
HARDWARE DEVELOPMENT												
HARDWARE DEVELOPMENT												
HARDWARE DEVELOPMENT												
HARDWARE DEVELOPMENT												
Subtotal Product Development												
Remarks:												
SYSTEMS ENGINEERING	CPAF	PROMIA				2,368	02/02			CONT.	CONT.	CONT.
Subtotal Support						2,368				CONT.	CONT.	CONT.
Remarks												

EXHIBIT R-2a, FY 2003 RDT&E,N PROJECT JUSTIFICATION

DATE: February 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0303140N PROJECT NAME: ISSP

PROGRAM ELEMENT TITLE: Information Systems Security Program (ISSP) PROJECT NUMBER: 2987

Exhibit R-3 Cost Analysis (page 2)													Date: February 2002
APPROPRIATION/BUDGET ACTIVITY: 7			PROGRAM ELEMENT: 0303140N										PROJECT NAME AND NUMBER: ISSP (X2987)
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
TEST AND EVALUATION												
Subtotal T&E												
Remarks												
PROGRAM MGMT SUPPORT	WX	SSC-CH				110	02/02					
Subtotal Management						110				CONT.	CONT.	CONT.
Remarks												
Total Cost						2,478				CONT.	CONT.	CONT.

FY 2003 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: February 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305160N
PROGRAM ELEMENT TITLE: Navy Meteorological and Oceanographic Sensors-Space (METOC)

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 2001 ACTUAL	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
R0524 Navy METOC Support (Space)	20,385	20,445	17,974	19,993	9,135	29,009	22,029	CONT.	CONT.
X1452 GEOSAT	1,694	1,849	1,827	1,065	1,096	1,121	1,146	CONT.	CONT.
TOTAL	22,079	22,294	19,801	21,058	10,231	30,130	23,175	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program element supports Navy requirements in meteorological and oceanographic (METOC) remote sensors. These interests include commitments to satellite, sensor, and operational demonstration/development activities associated with four satellite programs: 1) the Joint Service Defense Meteorological Satellite Program (DMSP), 2) The National Polar-orbiting Operational Environmental Satellite System (NPOESS), 3) the Navy Geodetic/geophysical Satellite (GEOSAT) program, funded entirely by Navy and 4) the joint NASA/Navy/NOAA Geostationary Imaging Fourier Transform Spectrometer (GIFTS) sensor program. The passive microwave instruments carried on DMSP and future NPOESS provide global oceanic and atmospheric data of direct operational relevance, including sea surface wind, sea ice, and precipitation; GEOSAT altimeter data are used to observe significant wave height, ocean fronts and eddies, and internal acoustic structure. The Navy (METOC) Support (Space) project provides for Navy participation in Navy/Air Force cooperative efforts leading to DMSP sensor development, specifically participation in the calibration and validation of instruments and delivery of satellite products to the Fleet. WindSat, an initiative begun in 1997, is a partnered program that meets multiple Naval remote sensing requirements and provides a significant risk reduction for NPOESS, the converged Department of Commerce/National Oceanic and Atmospheric Administration/Department of Defense environmental satellite program. The Navy METOC Support (Space) project supports the Navy contribution to WindSat, which is fully funded via a formalized inter-agency agreement. The NPOESS Integrated Program Office has provided a portion of the funds for the WindSat sensor and the DOD Space Test Program (STP) is funding a portion of the satellite bus and providing the launch vehicle. The GEOSAT provided ocean topography information from 1985-1990. In 1991, the Navy began the development of a follow-on capability to continue providing this required ocean topography information via the GEOSAT Follow-On satellite, launched on 10 February 1998. The Navy

FY 2003 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: February 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305160N
PROGRAM ELEMENT TITLE: Navy Meteorological and Oceanographic Sensors-Space (METOC)

Indian Ocean METOC Imager (IOMI) partnership on the NASA GIFTS sensor development, extends the lifetime of the GIFTS sensor to support the Navy Indian Ocean requirement for imagery direct to the Fleet. The joint Navy, NASA and NOAA sponsored IOMI-GIFTS program will provide the required temporal resolution with real-time high resolution environmental data to the fleet with technology transition to future GOES operational capabilities. Both the GEOSAT and Navy METOC (Space) projects fulfill Navy's obligation to develop Navy-unique, mission critical Space-based METOC technology.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

B. (U) PROGRAM CHANGE SUMMARY FOR TOTAL PE:

	FY 2001	FY 2002	FY 2003
(U) FY 2002 PRESIDENT'S Submission	19,549	23,492	
(U) FY01 SBIR Apr-27-01	-174		
(U) Execution Adjustment	2,704		
(U) Section 8123: Management Reform/ Initiative Reduction		-198	
(U) Congressional Decrease (Navy Transformation Priorities)		-1,000	
(U) FY 2003 PRESIDENT'S Submission	22,079	22,294	19,801

FY 2003 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: February 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305160N
PROGRAM ELEMENT TITLE: Navy Meteorological and Oceanographic Sensors-Space (METOC)

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 2001 ACTUAL	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
R0524 Navy (METOC) Support (Space)	20,385	20,445	17,974	19,993	9,135	29,009	22,029	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Navy Meteorological and Oceanographic Sensor-Space (METOC)-Navy (METOC) Support (Space) project provides for Navy participation in Defense Meteorological Satellite (DMSP) Special Sensor Microwave/Imager (SSM/I) and Special Sensor Microwave Imager/Sounder (SSM/IS) calibration efforts, and future Navy-unique sensor development efforts (WindSat and the Indian Ocean METOC Imager (IOMI)) in support of the Fleet operational requirements. The project ensures Navy operational requirements are satisfied primarily through demonstration of technologies for inclusion on operational constellations such as Defense Meteorological Satellite Program (DMSP), the National Polar-orbiting Operational Environmental Satellite System (NPOESS) and the National Oceanic and Atmospheric Administration (NOAA) Geostationary Operational Environmental Satellites (GOES). These efforts fulfill Navy unique requirements that are not funded within the DMSP and NPOESS programs, and are in accordance with current inter-agency agreements. The project also provides for participation in efforts leading to operational improvements of satellite derived products and Navy participation as a voting member of the DMSP Configuration Control Board (CCB). Future funding plans respond to emerging Chief of Naval Operations requirements for Navy METOC data. Plans for FY 2001 and beyond address the requirement for high-resolution METOC imagery to ships, in particular the Indian Ocean and Arabian Gulf region. The Indian Ocean METOC Imager (IOMI) mission will be executed cooperatively with the development of the NASA EO-3 New Millennium Program Geostationary Imaging Fourier Transform Spectrometer (GIFTS) with NOAA providing calibration and validation of the data products. The NASA GIFTS instrument, enhanced for extended demonstration of Navy operational utility, will meet Navy imaging requirements while satisfying NASA's technology demonstration objectives. This enhanced demonstration of an operational utility will promote a rapid technology infusion into next generation NOAA Geostationary Operational Environmental Satellites (GOES) and allows Navy to have data sets in place to utilize the future NOAA capability. An inter-agency partnership has been formed with NASA for the development of GIFTS and with NASA and NOAA for data calibration and validation. The DoD Space Test Program will provide the access to space of the IOMI-GIFTS satellite. The IOMI-GIFTS program directly responds to the #1 priority, and 2 additional concerns, of the CINC's

FY 2003 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: February 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305160N PROJECT NUMBER: R0524
PROGRAM ELEMENT TITLE: Navy Meteorological and Oceanographic Sensors-Space (METOC) PROJECT TITLE: Navy METOC Support (Space)

(2001 June) Top Five Maritime Concerns From Space and the Joint Typhoon Warning Center Mission Need Statement.

. (U) PROGRAM ACCOMPLISMENTS AND PLANS:

1. (U) FY 2001 ACCOMPLISHMENTS:
   - (U) (1,128k) Conducted SSM/I calibration and validation and began the calibration and validation effort associated with the launch of DMSP SSM/IS. Completed the integration, and flight testing of the Airborne Polarimetric Microwave Imaging Radiometer (APMIR) to use for calibration/validation of DMSP SSM/I and SSM/IS sensors and WindSat sensor. Prepared for WindSat calibration and validation.
   - (U) (19,067k) Completed WindSat sensor developmental testing and begin final integration and environmental test of flight payload. Continued development of algorithms and ground software for WindSat environmental data records.
   - (U) (190k) Supported the IOMI-GIFTS sensor development and spacecraft development trade studies. Successfully competed to obtain launch services for the IOMI-GIFTS payload from the DoD Space Test Program. Successfully completed sensor Preliminary Design Review.

2. (U) FY 2002 PLAN:
   - (U) (1,120k) Continue to monitor SSM/I performance and continue validation effort associated with the DMSP SSM/IS. Conduct field experiments with APMIR to use for calibration/validation of DMSP SSM/I, SSM/IS sensors, and the WindSat sensor.
   - (U) (9,772k) Complete flight payload development and delivery for spacecraft integration testing and conduct full space vehicle system testing including environmental testing. Complete development and testing of algorithms and ground software for WindSat environmental data records. Support WindSat launch processing, launch operations, early orbit checkout and begin on-orbit calibration and validation.
   - (U) (9,553k) Begin spacecraft and sensor development with long lead hardware in support of IOMI-GIFTS mission. Continue support of GIFTS sensor lifetime enhancements, data product development and mission operations and ground segment development.

3. (U) FY 2003 PLAN:

- (U) (688k) Continue to monitor SSM/I performance and continue validation effort associated with the DMSP SSM/IS and WindSat sensor. Conduct field experiments with APMIR to use for calibration/validation of DMSP SSM/I, SSM/IS sensors, and the WindSat sensor.
- (U) (2,000k) Provide engineering support for the evaluation of the Coriolis spacecraft and WindSat payload on-orbit performance and complete on-orbit calibration/validation of WindSat data.
- (U) (15,286k) Begin integration of IOMI spacecraft components. Continue engineering participation of the GIFTS sensor and data product development. Initiate mission operations and ground segment implementation.

B. (U) PROGRAM CHANGE SUMMARY: See total program change summary for P. E.

C. (U) OTHER PROGRAM FUNDING SUMMARY: DoD Space Test Program (STP) and NASA.

(U) RELATED RDT&E:
(U) PE 0605864F, DOD STP
(U) PE 0305160F, Air Force DMSP
(U) SAT 809/00110 NASA 258-30, Science, Aeronautics, & Technology; Office of Earth Science Research and Technology

D. (U) SCHEDULE PROFILE: Not applicable.

FY 2003 RDT&E,N PE/PROJECT COST BREAKDOWN DATE: February 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305160N PROJECT NUMBER: R0524
PROGRAM ELEMENT TITLE: Navy Meteorological and Oceanographic Sensors-Space (METOC) PROJECT TITLE: Navy METOC Support (Space)

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 2001	FY 2002	FY 2003
a. Satellite Development	7,370	11,725	15,286
b. Payload Development	11,887	7,600	2,000
c. Science and Calibration/Validation	854	770	438
d. Airborne Testbed	274	350	250
e. Support GFO	0	0	0
Total	20,385	20,445	17,974

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method Fund Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 2001 Budget	FY 2002 Budget	FY 2003 Budget	To Complete	Total Program
Product Development									
Misc.	Misc.	N/A	CONT.	CONT.	19,257	19,325	17,286	CONT.	CONT.
Support and Management:									
Misc.	Misc.	N/A	CONT.	CONT.	0	0	0	CONT.	CONT.
Test and Evaluation:									
Misc.	Misc.	N/A	CONT.	CONT.	1,128	1,120	688	CONT.	CONT.
TOTAL:					20,385	20,445	17,974	CONT.	CONT.

FY 2003 RDT&E,N PE/PROJECT COST BREAKDOWN DATE: February 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305160N PROJECT NUMBER: R0524
PROGRAM ELEMENT TITLE: Navy Meteorological and Oceanographic Sensors-Space (METOC) PROJECT TITLE: Navy METOC Support (Space)

GOVERNMENT FURNISHED PROPERTY: Not Applicable

	FY 2001 Budget	FY 2002 Budget	FY 2003 Budget	To Complete	Total Program
Subtotal Product Development	19,257	19,325	17,286	CONT.	CONT.
Subtotal Support and Management:	0	0	0	0	0
Subtotal Test and Evaluation:	1,128	1,120	688	CONT.	CONT.
Total Project	20,385	20,445	17,974	CONT.	CONT.

FY 2003 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: February 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305160N
PROGRAM ELEMENT TITLE: Navy Meteorological and Oceanographic Sensors-Space (METOC)

(U) COST (Dollars in thousands)

PROJECT NUMBER & Title	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	To Complete	Total Program
X1452 GEOSAT	1,694	1,849	1,827	1,065	1,096	1,121	1,146	CONT.	CONT.

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project provides a satellite-borne radar altimeter sensor to obtain ocean topography measurements from which tactically significant features such as ocean fronts, and eddies, wave heights, internal acoustic structure, and sea-ice edges are derived. Topography provides a unique and important data source in support of a number of Naval warfare areas such as anti-submarine and undersea warfare. It also provides other agencies, such as National Oceanic and Atmospheric Administration and National Aeronautics and Space Administration with valuable inputs to studies involving Pacific Ocean temperature oscillations, global warming and climate change (El Nino, La Nina effects). Ocean topography data was previously provided by GEOSAT from 1985 until the satellite failed in January 1990. The GEOSAT Follow-On (GFO) satellite provides altimetry data until altimetry data becomes available from a future national environmental satellite system.

FY 2003 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: February 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305160N PROJECT NUMBER: X1452
PROGRAM ELEMENT TITLE: Navy Meteorological and Oceanographic Sensors-Space (METOC) PROJECT TITLE: GEOSAT

- (U) PROGRAM ACCOMPLISMENTS AND PLANS:

1. (U) FY 2001 Accomplishments:

- (U) (800k) Funded on-orbit performance incentive.
- (U) (325k) Developed improved ground station satellite data processing techniques.
- (U) (569k) Continued to assess on-orbit system performance, conducted payload calibration/validation, refined orbits and resolved performance anomalies.

2. (U) FY 2002 Plan:

- (U) (800k) Fund on-orbit performance incentive.
- (U) (373k) Develop improved ground station satellite data processing techniques.
- (U) (676k) Continue to assess on-orbit system performance, conduct payload calibration/validation, refine orbits and resolve performance anomalies.

3. U) FY 2003 Plan:

- (U) (800k) Fund on-orbit performance incentive.
- (U) (375k) Develop improved ground station satellite data processing techniques.
- (U) (652k) Continue to assess on-orbit system performance, conduct payload calibration/validation, refine orbits and resolve performance anomalies.

FY 2003 RDT&E,N PE/PROJECT COST BREAKDOWN DATE: February 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305160N PROJECT NUMBER: X1452
PROGRAM ELEMENT TITLE: Navy Meteorological and Oceanographic Sensors-Space (METOC) PROJECT TITLE: GEOSAT

B (U) PROGRAM CHANGE SUMMARY:

(U) SEE PROGRAM CHANGE SUMMARY FOR PE.

C. (U) OTHER PROGRAM FUNDING SUMMARY: Not applicable.

(U) RELATED RDT&E:
(U) PE 0604218N (Air/Ocean Equipment Engineering)

D. (U) SCHEDULE PROFILE:

	FY 2001	FY 2002	FY 2003
Program Milestones			
Engineering Milestones			
T&E Milestones	Oper Supt	Oper Supt	Oper Supt
Contract Milestones	Not Applicable		

FY 2003 RDT&E,N PE/PROJECT COST BREAKDOWN DATE: February 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305160N PROJECT NUMBER: X1452
PROGRAM ELEMENT TITLE: Navy Meteorological and Oceanographic Sensors-Space (METOC) PROJECT TITLE: GEOSAT

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 2001	FY 2002	FY 2003
a. Satellite Development	1,694	1,849	1,827
b. Sensor Development	0	0	0
c. Contractor Engineering Support	0	0	0
Total	1,694	1,849	1,827

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method Fund Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 2000 &Prior	FY 2001 Budget	FY 2002 Budget	FY 2003 Budget	To Complete	Total Program
Product Development										
Ball Aerospace w/Options	CPIF	8/92	85,213	85,213	84,271	0	0	0	CONT.	CONT.
Various	Various	N/A	CONT.	CONT.	8,045	0	0	0	CONT.	CONT.
Support and Management:										
Ball Aerospace w/Options	CPIF	8/92	0	0	0	1,125	1,173	1,175	CONT.	CONT.
Various	Various	N/A	CONT.	CONT.	0	569	676	652	CONT.	CONT.

FY 2003 RDT&E,N PE/PROJECT COST BREAKDOWN DATE: February 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305160N PROJECT NUMBER: X1452
PROGRAM ELEMENT TITLE: Navy Meteorological and Oceanographic Sensors-Space (METOC) PROJECT TITLE: GEOSAT

Contractor/ Government Performing Activity	Contract Method Fund Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 2000 &Prior	FY 2001 Actual	FY 2002 Budget	FY 2003 Budget	To Complete	Total Program
Various					0	0	0	0	CONT.	CONT.

Test and Evaluation: Not Applicable

GOVERNMENT FURNISHED PROPERTY Not Applicable

	FY 2000 & Prior Actual	FY 2001 Budget	FY 2002 Budget	FY 2003 Budget	To Complete	Total Program
Subtotal Product Development	92,316	0	0	0	CONT.	CONT.
Subtotal Support and Management	0	1,694	1,849	1,827	CONT.	CONT.
Subtotal Test and Evaluation Not Applicable						
Total Project	92,316	1,694	1,849	1,827	CONT.	CONT.

EXHIBIT R-2, FY2003 RDT&E,N Budget Item Justification DATE: FEBRUARY 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305188N PROGRAM ELEMENT TITLE: Joint (C4ISR) Battle Center (JBC) PROJECT NUMBER: X2456 PROJECT TITLE: Joint Battle Center (JBC)

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 2001 ACTUAL	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
X2456 Joint (C4ISR) Battle Center	9,458	13,493	21,970	23,676	23,951	24,130	24,330	CONT.	CONT.
TOTAL	9,458	13,493	21,970	23,676	23,951	24,130	24,330	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Joint Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) Battle Center (JBC) is the U.S. Joint Forces Command (JFCOM) and Chairman, Joint Chiefs of Staff (CJCS) facility for warfighter exploration and assessment of C4ISR capabilities. The Center provides the combatant commands, at the Joint Task Force (JTF) level, with a near-term joint assessment and experimental environment for the warfighter and technologist in support of Joint Vision 2020 (JV2020). It serves as the technical analysis and assessment agency for the Joint Requirement Operating Council (JROC) in determining C4ISR system "value-added" PRIOR to introduction to the CINCs and in advance of system fielding in operational environments. The intent is for the JBC to be a forcing function for joint synchronization and a means to foster rapid, near-term insertion of C4ISR technology. The mission of the JBC is to provide rapid assessment of required C4ISR interoperability and warfighter utility, join emerging C4ISR technology with new operational doctrine, and result in fielding C4ISR capabilities that meet the joint warfighter's needs.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it provides rapid assessment of required C4ISR interoperability, as well as rapid insertion of emerging technology, with new operational doctrine that will result in fielding C4ISR capabilities that meet the joint warfighter's need.

B. (U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2001 ACCOMPLISHMENTS:

- (U) Program Development. The Program Development Directorate within the JBC is responsible for CINC requirements coordination (including CINC Conferences), science and technology (S&T) community coordination, doctrine, C4ISR operational requirements document (ORD) reviews, Service and Agency technical working group participation, program plan development, and architecture support.

  - (U) ($127K) CINC Requirements Office (CRO): The JBC will continue to identify the CINC's C4ISR near-term requirements through the CINCs' Requirements Office. The CRO collects C4ISR information from each of the CINCs, coordinates the prioritization of the information into CINC C4ISR issue categories, and then works with JBC project teams to identify and define projects. By integrating the JBC process with USJFCOM the CINCs will gain the additional assistance that may be required to support those CINC requirements, especially those that the JBC could not address due to lack of resources or lack of near-term solutions. The CRO identifies the operational problems applicable to the JTF and those areas where assistance by the JBC might be able to achieve a "forcing function" for operational enhancements leveraged by C4ISR improvements. FY 01 Accomplishments: Coordinated/completed interoperability reviews of policy documents in support of the Joint Forces Command Integration Council (JFCIC); attended Millennium Challenge 02 (MC02) and Federated Battle Lab (FBL) conferences to gather information in support of FY 02 project build; planned and hosted FY 02 CINC Planning Conference in Aug 01; reviewed various C4ISR plans to better define specific target technologies in support of the warfighter.

  - (U) ($340K) Joint Operational Architecture. The focus of Joint Operational Architectures is on C4ISR support to the warfighter across the "Range of Military Operations." The objective is to describe the doctrinally based tasks and activities, operational elements, and the time phased information flows required to accomplish Joint military operations. The architectures will be used to assess and analyze doctrine, Tactical Technical Procedures (TTPs), system and procedural interoperability, processes, and synchronization issues that impact Joint Forces. These Operational Architectures will provide the baseline to identify warfighter requirements, design and structure assessments, and generate functional metrics. They will be developed and documented in close coordination with OSD, Joint staff, CINCs, and Services. FY 01

Accomplishments: Engineered and developed web site architecture to allow viewing of experiment configurations for Joint User Interoperability Communication Exercise 01 (JUICE 01); attended meetings to gather information and interact with defense community for the purpose of potential operational architecture impact in the area of both systems and doctrine; Millennium Challenge 02 Architecture Support.

- (U) ($174K) Science & Technology (S&T): The Science and Technology (S&T) Group has been productively supporting the execution of FY01 projects. As a matrixed organization of personnel, they provided some of the FY01 project technology candidates through the build and release of a request for information to industry and the DoD S&T community. They also managed the Industry Day and S&T conference that provided the basis for the FY01 program. The S&T group managed the JBC input into the USJFCOM Industry Day. There was significant travel executed across the JBC directorates that provided an S&T input to many of the projects as well as a general understanding of the current S&T activities external to the JBC. In FY02 the S&T Group will take a much stronger role in the program build, identifying the technologies to be assessed to the project assessment group. The S&T collection of data from travel will be managed to better influence the future project technology selection.

- (U) C4ISR Assessments. The C4ISR Assessments Directorate within the JBC is responsible for managing and coordinating projects that will lead to a decision from higher authority. Included in this is the development and execution of project assessments. In additional to technical factors, the assessment analysis includes economics, training, personnel, policy and POM. Once an assessment is complete, a recommendation for the assessment is developed and briefed, a "quick look" is prepared then the final report is prepared, staffed, published and distributed. These products are used by higher authority in the C4ISR decision-making process.

  - (U) ($2,142K) FY01 C4ISR Projects: Joint Task Force (JTF) Command & Control; Theater Air Missile Defense Initiative (TAMDI) Interoperability; Joint Intelligence Surveillance Reconnaissance (ISR) TPED Management; Joint Intelligence Interoperability Board (JIIB) SBA Joint I3 Implementation; Joint Battle Management Integration (JBMI); CINC and JTF Command Center Decision Aids; JTF Operations; Imagery & Geo-Spatial Compression; Information Dissemination Management (IDM); Joint Auto Single Guard Solution; Automated Network Information Flow; NSM Correlation & Display Systems; Joint En-Route Mission Planning and Rehearsal System, Near-Term (JEMPRS-NT).

- (U) Combined and Joint Operations. The Combined and Joint Operations Directorate within the JBC is responsible for the Federated Battle Lab (FBL), the Intelligence Federated Battle Lab (IFBL), the Combined Federated Battle Lab (CFBL), and transformation/synchronization (includes JBC participation in various major exercises: Joint Experimentation (JE), Unified Vision (UV), United Endeavor (UE), Millennium Challenge (MC), and Joint Warrior Interoperability Demonstration (JWID) as examples).

  - (U) ($1,449K) Follow-on JWID. Upon completion and evaluation of each theme year for JWID, the CINC's and CJTF's involved identify systems which demonstrated warfighting utility but which require further refinement and follow-on assessment. These technologies are forwarded to the JBC for inclusion in the fiscal year plan. Enhancements and follow-on assessments are conducted by JBC and programmatic recommendations are prepared.

  - (U) ($2,115K) Federated Battle Lab (FBL). The FBL is a consortium of Joint and Service battle centers/laboratories formed to promote solutions to operational problems in CJTF environments. The JBC is recognized as the joint FBL hub by CINCs, services, agencies and CJTFs. The JBC, as chairman of the consortium, will coordinate efforts to capitalize on lessons learned in order to continue these effective and successful collaborative experiments in future years. FY01 FBL projects supported: Covert Localized Tracking (USAF Lead), Centric Network Computing (USN Lead), Advanced Joint Comm Support (USA Lead).

  - (U) ($137K) Combined Federated Battle Lab (CFBL): The CFBL is a consortium of nations and international organizations formed to evaluate combined C4ISR interoperability shortfalls, assess potential solutions through the utilization of agreed upon phased assessment procedures, report the results of those assessments, and make recommendations in order to foster improved combined CIS for the explicit purpose of promoting near-term concepts and acceptance of solutions. The CFBLNet is based on the JWID developed Combined Area Network (CWAN) concept as implemented in support of JWID '99-R execution period in July 1999. CFBLNet will span the US and connect to several allied sites. The CFBLNet will support the overarching CFBL concept and provide infrastructure to support applications, databases, and network services for participants in a collaborative RDT&E joint and/or combined environment. FY 01 Accomplishments: Assisted in coordination planning efforts for the CFBL Conference with OSD, Joint Staff and DISA-CAT; attended coordination meetings with OSD, Joint Staff (CFBL Executive Agent), DISA CAT (CFBL Secretariat) on the plans, structure and goals of the CFBL; coordinated with OSD, Joint Staff, DISA-CAT and EUCOM on FY 01 CFBL initiatives.

- (U) ($50K) Intelligence Federated Battle Lab (IFBL): It is envisioned that the IFBL will be a voluntary, JBC chaired, consortium linking the National/Service Intelligence Agencies and the CINCs. It will provide upfront IC buy-in while mining the Services for Joint capabilities. The IFBL would provide inter-agency collaboration and joint leveraging of service dollars. It would provide a bridge between the NFIP and the TIARA (Tactical Intelligence and Related Activities) world and provide additional access to the Joint Battle Center for the expanded Intelligence Community. The IFBL proposed for in this initiative will provide unprecedented cross-Agency, cross-CINC and cross-Service collaboration during all phases of spiral technology development applicable to the Intelligence Community. In addition, CINCs, Service and Agency participants in the IFBL will be able to expose their technology initiatives to FBL and CFBL participants in the overall quest for joint and multinational interoperability. FY 01 Accomplishments: Attended DoD intelligence conference and meetings for program planning, coordination and information gathering; briefed members of the Senate Select Committee on Intelligence (SSCI), Senate Select Committee on Security (SSCS), USN, and JFCOM NSA representative on IFBL merits.

- (U) Engineering. The Engineering Directorate at the JBC is responsible for information engineering and development of the Joint C4ISR Integration Facility (JCIF), which is a standing JTF battle management system, and of the Reconfigurable C4ISR Lab, which is used to accommodate various assessment and technological scenarios. In support of these efforts and the JBC operations as a whole, Engineering is responsible for information technology, enterprise management, telecommunications, video systems, project engineering, information security, facilities support, web/database engineering, and lab resources.

  - (U) ($695K) Joint C4ISR Integration Facility (JCIF): The Joint C4ISR Integration Facility (JCIF) is a subset of the larger JBC Lab. The JCIF is comprised of all the major C4I systems found at the JTF echelon, including the CINC, Commander, Joint Task Force (CJTF), NAVFOR, ARFOR, AFFOR, MARFOR, JSOTF, JIC, and JCCC components. The systems include Global Command and Control System (GCCS), GCCS I3, JDISS, GCCS-Maritime, GCCS-M I3, GCCS-Army, Advanced Field Artillery Tactical Data System (AFATDS), All Source Analysis System (ASAS) RWS, Theater Battle Management Core System (TBMCS), MSBL, SOF-IV, and JDIICS-D. The JCIF also contains several multi-level secure systems. All of these baseline systems allow introduction of other software or systems to test their integration and interoperability abilities. Each component is on a separate subnet, enabling simulation of physical separation at various bandwidths. The JCIF is normally operated on a U.S. SECRET local network interconnected to the SIPRNET, but can also be disconnected to operate in a closed, controlled environment. FY01

Accomplishments: Network Security Management Correlation & Display (NSM C&D), Automated Information Network Flow (ANIF), and Command Center Decision Aids (CCDA) participated in Unified Vision 01, a JFCOM Joint Experiment, testing the reachback headquarters and Common Relevant Operational Picture concepts; Joint Intelligence, Imagery and Information Integration (JI3I) Interoperability, testing JI3I on NT platforms using the CJTF and NAVFOR components; ANIF, NSM C&D, Joint Battle Management Integration (JBMI), and Joint Automated Single Guard Solution (JASGS) conducted their warfighter assessments in the Joint User Interoperability Communication Exercise 2001 (JUICE 01); Theater Battle Management Core System (TMBCS) installation, consisting of seven servers and two clients, plus a Virtual Private Network; Global Command and Control System (GCCS) version upgrade from 3.03 to 3.2; Advance Field Artillery Tactical Data System (AFATDS) version upgrade from 98 to 99; Marine Corps Air Ground Task Force (MAGTF) System Baseline upgrade to Intelligence Operation System; GCCS-Maritime version upgrade from 3.1 to 3.2; GCCS-Army version upgrade to 3.2.4.

- (U) ($300K) Reconfigurable C4ISR Lab: The JBC Lab provides a learning and experimentation environment to assess promising technology that will meet CINC's stated requirements. The Lab is a composite of the Defense Information Infrastructure, providing Solaris and NT platforms and networks as building blocks for a given assessment. Capabilities include WAN/LAN emulation, network services, collaboration tools, network management tools, data collection, and performance analysis. The Lab is able to provide communications at the unclassified U.S. SECRET, Coalition SECRET, NATO SECRET, and Special Compartmented Information (SCI) levels. Typically, projects use the lab to conduct assessments in a closed, controlled environment prior to including warfighters in a distributed event. FY01 Accomplishments: Defense Collaboration Tool Suite (DCTS) demonstrations; Joint Interface Control Officer (JICO) demonstrations; Coalition Multilevel Hexagon Prototype (CMHP) demonstrations; Coalition Federated Battle Lab (CFBL) Coalition Wide Area Network (CWAN) multicast testing; Command Center Decision Aids (CCDA) OSIM Limited Objective Experiment; Automated Network Information Flow (ANIF) Phase I; Network Security Management Correlation & Display (NSM C&D) Phase I; Joint Automated Single Guard Solution (JASGS) Phase II; Joint Intelligence Surveillance Reconnaissance Management (JIRSM) Phase II; Joint Enroute Mission Planning Reporting System - Near Term (JEMPRS-NT) Phase I; Joint Warfighter Interoperability Demonstration 2001 (JWID 01); Stood up Information Assurance Cell; Deinstalled Global Broadcast System Phase I and installed GBS Phase II Receive suite.

- (U) ($1,929) Interoperability Process Software Tools. Develop, prototype, demonstrate, and package an end-to-end process and related tools for anticipating and correcting C4ISR

interoperability problems as well as defining interoperability requirements for future systems. This includes the building of a representative integrated architecture at the Joint Task Force (JTF) level to support C4ISR system interoperability evaluation.

2. (U) FY 2002 Plan:

- (U) Program Development. The Program Development Directorate within the JBC is responsible for CINC requirements coordination (including CINC Conferences), science and technology (S&T) community coordination, doctrine, C4ISR operational requirements document (ORD) reviews, Service and Agency technical working group participation, program plan development, and architecture support.

  - (U) ($121K) CINC Requirements Office (CRO): The JBC will continue to identify the CINC's C4ISR near-term requirements through the CINCs' Requirements Office. The CRO collects C4ISR information from each of the CINCs, coordinates the prioritization of the information into CINC C4ISR issue categories, and then works with JBC project teams to identify and define projects. By integrating the JBC process with USJFCOM the CINCs will gain the additional assistance that may be required to support those CINC requirements, especially those that the JBC could not address due to lack of resources or lack of near-term solutions. The CRO identifies the operational problems applicable to the JTF and those areas where assistance by the JBC might be able to achieve a "forcing function" for operational enhancements leveraged by C4ISR improvements.

  - (U) ($346K) Joint Operational Architecture. The focus of Joint Operational Architectures is on C4ISR support to the warfighter across the "Range of Military Operations." The objective is to describe the doctrinally based tasks and activities, operational elements, and the time phased information flows required to accomplish Joint military operations. The architectures will be used to assess and analyze doctrine, Tactical Technical Procedures (TTPs), system and procedural interoperability, processes, and synchronization issues that impact Joint Forces. These Operational Architectures will provide the baseline to identify warfighter requirements, design and structure assessments, and generate functional metrics. They will be developed and documented in close coordination with OSD, Joint staff, CINCs, and Services.

  - (U) ($173K) Science & Technology (S&T): The Science and Technology (S&T) Group has been productively supporting the execution of FY01 projects. In FY02 the S&T Group will take a

much stronger role in the program build, identifying the technologies to be assessed to the project assessment group. The S&T collection of data from travel will be managed to better influence the future project technology selection.

- (U) C4ISR Assessments. The C4ISR Assessments Directorate within the JBC is responsible for managing and coordinating projects that will lead to a decision from higher authority. Included in this is the development and execution of project assessments. In additional to technical factors, the assessment analysis includes economics, training, personnel, policy and POM. Once an assessment is complete, a recommendation for the assessment is developed and briefed, a "quick look" is prepared then the final report is prepared, staffed, published and distributed. These products are used by higher authority in the C4ISR decision-making process.

  - (U) ($3,290K) FY02 C4ISR Projects: JBC projects are nominated in August of a particular fiscal year, submitted to Joint Staff for approval in the September/October timeframe, and are finally approved in the October/November timeframe (i.e., during first quarter of the actual FY work is to begin). A CINC Planning Conference is coordinated and hosted by the JBC in August. This conference, in accordance with the CINC requirements and subsequent CJCS concurrence, will determine the following fiscal year's work.

    - Established by Chairman, Joint Chiefs of Staff at the request of the CINCs during the 95-2 CINC Conference, the mission of the JBC is to provide rapid assessment of required C4ISR interoperability and warfighter utility, join emerging C4ISR technology with new operational doctrine, resulting in fielding C4ISR capabilities that meet the joint warfighter's needs. The goal is to complete the assessments and make recommendations to the JROC within a 12-18 month timeframe.

      - This forces the JBC to be a "reactive" organization.

- (U) Combined and Joint Operations. The Combined and Joint Operations Directorate within the JBC is responsible for the Federated Battle Lab (FBL), the Intelligence Federated Battle Lab (IFBL), the Combined Federated Battle Lab (CFBL), and transformation/synchronization (includes JBC participation in various major exercises: Joint Experimentation (JE), UV, United Endeavor (UE), Millennium Challenge (MC), and Joint Warrior Interoperability Demonstration (JWID) as examples).

- (U) ($2,561K) Federated Battle Lab (FBL). The FBL is a consortium of Joint and Service battle centers/laboratories formed to promote solutions to operational problems in CJTF environments. The JBC is recognized as the joint FBL hub by CINCs, services, agencies and CJTFs. The JBC, as chairman of the consortium, will coordinate efforts to capitalize on lessons learned in order to continue these effective and successful collaborative experiments in future years.

- (U) ($993K) Combined Federated Battle Lab (CFBL): The CFBL is a consortium of nations and international organizations formed to evaluate combined C4ISR interoperability shortfalls, assess potential solutions through the utilization of agreed upon phased assessment procedures, report the results of those assessments, and make recommendations in order to foster improved combined CIS for the explicit purpose of promoting near-term concepts and acceptance of solutions. The CFBLNet is based on the JWID developed Combined Area Network (CWAN) concept as implemented in support of JWID '99-R execution period in July 1999. CFBLNet will span the US and connect to several allied sites. The CFBLNet will support the overarching CFBL concept and provide infrastructure to support applications, databases, and network services for participants in a collaborative RDT&E joint and/or combined environment.

- (U) ($46K) Intelligence Federated Battle Lab (IFBL): It is envisioned that the IFBL will be a voluntary, JBC chaired, consortium linking the National/Service Intelligence Agencies and the CINCs. It will provide upfront IC buy-in while mining the Services for Joint capabilities. The IFBL would provide inter-agency collaboration and joint leveraging of service dollars. It would provide a bridge between the NFIP and the TIARA (Tactical Intelligence and Related Activities) world and provide additional access to the Joint Battle Center for the expanded Intelligence Community. The IFBL proposed for in this initiative will provide unprecedented cross-Agency, cross-CINC and cross-Service collaboration during all phases of spiral technology development applicable to the Intelligence Community. In addition, CINCs, Service and Agency participants in the IFBL will be able to expose their technology initiatives to FBL and CFBL participants in the overall quest for joint and multinational interoperability.

- (U) Engineering. The Engineering Directorate at the JBC is responsible for information engineering and development of the Joint C4ISR Integration Facility (JCIF), which is a standing JTF battle management system, and of the Reconfigurable C4ISR Lab, which is used to accommodate various assessment and technological scenarios. In support of these efforts and the JBC operations as a whole, Engineering is responsible for information technology,

enterprise management, telecommunications, video systems, project engineering, information security, facilities support, web/database engineering, and lab resources.

- (U) ($709K) Joint C4ISR Integration Facility (JCIF): The Joint C4ISR Integration Facility (JCIF) is a subset of the larger JBC Lab. The JCIF is comprised of all the major C4I systems found at the JTF echelon, including the CINC, CJTF, NAVFOR, ARFOR, AFFOR, MARFOR, JSOTF, JIC, and JCCC components. The systems include GCCS, GCCS I3, JDISS, GCCS-M, GCCS-M I3, GCCS-A, AFATDS, ASAS RWS, TBMCS, MSBL, SOF-IV, and JDIICS-D. The JCIF also contains several multi-level secure systems. All of these baseline systems allow introduction of other software or systems to test their integration and interoperability abilities. Each component is on a separate subnet, enabling simulation of physical separation at various bandwidths. The JCIF is normally operated on a U.S. SECRET local network interconnected to the SIPRNET, but can also be disconnected to operate in a closed, controlled environment.

- (U) ($300K) Reconfigurable C4ISR Lab: The JBC Lab provides a learning and experimentation environment to assess promising technology that will meet CINC's stated requirements. The Lab is a composite of the Defense Information Infrastructure, providing Solaris and NT platforms and networks as building blocks for a given assessment. Capabilities include WAN/LAN emulation, network services, collaboration tools, network management tools, data collection, and performance analysis. The Lab is able to provide communications at the unclassified U.S. SECRET, Coalition SECRET, NATO SECRET, and Special Compartmented Information (SCI) levels. Typically, projects use the lab to conduct assessments in a closed, controlled environment prior to including warfighters in a distributed event.

- (U) Joint Integration and Interoperability (JI&I). USJFCOM will collect, consolidate and prioritize real world interoperability and integration needs on behalf of the Chairman, Joint Chiefs of Staff. The JI&I will serve as the Chairman’s advocate for these issues and will produce a single serialized and prioritized “list” of CINCs Services Agencies (C/S/A) interoperability and integration concerns that can be attacked in a synchronized manner. This prioritized list will be provided to the JROC for endorsement. Following endorsement of the prioritized list by the JROC, the JI&I execute DOTMLPF remedy sets. FY 02 plans are identified below:

- ($2,754K) Army and Marine Corps Digitization of the Battlefield: The JI&I will begin this synchronization effort by validating the requirement (developed IERs and KPPs), facilitate a MOA between Army and USMC to develop an initial digital interface between the Service systems at the Battalion level (messages), engaged the JFPO/CIPO office in SPAWAR for engineering support for the interface test plan and has engaged the Multi-Service C2 General Officer Steering Committee (MSC2GOSC) to develop a Concept of Operations between the systems. The JI&I will coordinate and synchronize efforts as the material interface is developed and tested leading to a Joint Distributed Engineer Plant (JDEP) demonstration and validate the CONOPS/TTP during the Millennium Challenge 02 field exercise.

- ($2,200K) Collaborative Planning Tools: The JI&I will field the Defense Collaborative Planning Tool Suite (DCTS) to USCENTCOM, USPACOM and USJFCOM in support of Operation Enduring Freedom and Operation Noble Eagle for Homeland Security. JI&I will leverage the initial assessment by JBC and the endorsement by the JROC to provide a single joint collaborative tool set to the warfighter. DISA will provide integration support to JI&I fielding the CPT capability to the various CINCs.

3. (U) FY 2003 Plan:

- (U) Program Development. The Program Development Directorate within the JBC is responsible for CINC requirements coordination (including CINC Conferences), science and technology (S&T) community coordination, doctrine, C4ISR operational requirements document (ORD) reviews, Service and Agency technical working group participation, program plan development, and architecture support.

  - (U) ($115K) CINC Requirements Office (CRO): The JBC will continue to identify the CINC's C4ISR near-term requirements through the CINCs' Requirements Office. The CRO collects C4ISR information from each of the CINCs, coordinates the prioritization of the information into CINC C4ISR issue categories, and then works with JBC project teams to identify and define projects. By integrating the JBC process with USJFCOM the CINCs will gain the additional assistance that may be required to support those CINC requirements, especially those that the JBC could not address due to lack of resources or lack of near-term solutions. The CRO identifies the operational problems applicable to the JTF and those areas where assistance

by the JBC might be able to achieve a "forcing function" for operational enhancements leveraged by C4ISR improvements.

- (U) ($345K) Joint Operational Architecture. The focus of Joint Operational Architectures is on C4ISR support to the warfighter across the "Range of Military Operations." The objective is to describe the doctrinally based tasks and activities, operational elements, and the time phased information flows required to accomplish Joint military operations. The architectures will be used to assess and analyze doctrine, Tactical Technical Procedures (TTPs), system and procedural interoperability, processes, and synchronization issues that impact Joint Forces. These Operational Architectures will provide the baseline to identify warfighter requirements, design and structure assessments, and generate functional metrics. They will be developed and documented in close coordination with OSD, Joint staff, CINCs, and Services.

- (U) ($166K) Science & Technology (S&T): The Science and Technology (S&T) Group has been productively supporting the execution of FY01 and FY02 projects. In FY03 the S&T Group will continue to take a much stronger role in the program build, identifying the technologies to be assessed to the project assessment group. The S&T collection of data from travel will be managed to better influence the future project technology selection.

- (U) C4ISR Assessments. The C4ISR Assessments Directorate within the JBC is responsible for managing and coordinating projects that will lead to a decision from higher authority. Included in this is the development and execution of project assessments. In additional to technical factors, the assessment analysis includes economics, training, personnel, policy and POM. Once an assessment is complete, a recommendation for the assessment is developed and briefed, a "quick look" is prepared then the final report is prepared, staffed, published and distributed. These products are used by higher authority in the C4ISR decision-making process.

- (U) ($3,343K) FY03 C4ISR Projects: JBC projects are nominated in August of a particular fiscal year, submitted to Joint Staff for approval in the September/October timeframe, and are finally approved in the October/November timeframe (i.e., during first quarter of the actual FY work is to begin). A CINC Planning Conference is coordinated and hosted by the JBC in August. This conference, in accordance with the CINC requirements and subsequent CJCS concurrence, will determine the following fiscal year's work.

- Established by Chairman, Joint Chiefs of Staff at the request of the CINCs during the 95-2 CINC Conference, the mission of the JBC is to provide rapid assessment of required C4ISR interoperability and warfighter utility, join emerging C4ISR technology with new operational doctrine, resulting in fielding C4ISR capabilities that meet the joint warfighter's needs. The goal is to complete the assessments and make recommendations to the JROC within a 12-18 month timeframe.
- This forces the JBC to be a "reactive" organization.

- (U) Combined and Joint Operations. The Combined and Joint Operations Directorate within the JBC is responsible for the Federated Battle Lab (FBL), the Intelligence Federated Battle Lab (IFBL), the Combined Federated Battle Lab (CFBL), and transformation/synchronization (includes JBC participation in various major exercises: Joint Experimentation (JE), UV, United Endeavor (UE), Millennium Challenge (MC), and Joint Warrior Interoperability Demonstration (JWID) as examples).

  - (U) ($2,614K) Federated Battle Lab (FBL). The FBL is a consortium of Joint and Service battle centers/laboratories formed to promote solutions to operational problems in CJTF environments. The JBC is recognized as the joint FBL hub by CINCs, services, agencies and CJTFs. The JBC, as chairman of the consortium, will coordinate efforts to capitalize on lessons learned in order to continue these effective and successful collaborative experiments in future years.

  - (U) ($1,007K) Combined Federated Battle Lab (CFBL): The CFBL is a consortium of nations and international organizations formed to evaluate combined C4ISR interoperability shortfalls, assess potential solutions through the utilization of agreed upon phased assessment procedures, report the results of those assessments, and make recommendations in order to foster improved combined CIS for the explicit purpose of promoting near-term concepts and acceptance of solutions. The CFBLNet is based on the JWID developed Combined Area Network (CWAN) concept as implemented in support of JWID '99-R execution period in July 1999. CFBLNet will span the US and connect to several allied sites. The CFBLNet will support the overarching CFBL concept and provide infrastructure to support applications, databases, and network services for participants in a collaborative RDT&E joint and/or combined environment.

  - (U) ($38K) Intelligence Federated Battle Lab (IFBL): It is envisioned that the IFBL will be a voluntary, JBC chaired, consortium linking the National/Service Intelligence Agencies and the CINCs. It will provide upfront IC buy-in while mining the Services for Joint

capabilities. The IFBL would provide inter-agency collaboration and joint leveraging of service dollars. It would provide a bridge between the NFIP and the TIARA (Tactical Intelligence and Related Activities) world and provide additional access to the Joint Battle Center for the expanded Intelligence Community. The IFBL proposed for in this initiative will provide unprecedented cross-Agency, cross-CINC and cross-Service collaboration during all phases of spiral technology development applicable to the Intelligence Community. In addition, CINCs, Service and Agency participants in the IFBL will be able to expose their technology initiatives to FBL and CFBL participants in the overall quest for joint and multinational interoperability.

- (U) Engineering. The Engineering Directorate at the JBC is responsible for information engineering and development of the Joint C4ISR Integration Facility (JCIF), which is a standing JTF battle management system, and of the Reconfigurable C4ISR Lab, which is used to accommodate various assessment and technological scenarios. In support of these efforts and the JBC operations as a whole, Engineering is responsible for information technology, enterprise management, telecommunications, video systems, project engineering, information security, facilities support, web/database engineering, and lab resources.

  - (U) ($712K) Joint C4ISR Integration Facility (JCIF): The Joint C4ISR Integration Facility (JCIF) is a subset of the larger JBC Lab. The JCIF is comprised of all the major C4I systems found at the JTF echelon, including the CINC, CJTF, NAVFOR, ARFOR, AFFOR, MARFOR, JSOTF, JIC, and JCCC components. The systems include GCCS, GCCS I3, JDISS, GCCS-M, GCCS-M I3, GCCS-A, AFATDS, ASAS RWS, TBMCS, MSBL, SOF-IV, and JDIICS-D. The JCIF also contains several multi-level secure systems. All of these baseline systems allow introduction of other software or systems to test their integration and interoperability abilities. Each component is on a separate subnet, enabling simulation of physical separation at various bandwidths. The JCIF is normally operated on a U.S. SECRET local network interconnected to the SIPRNET, but can also be disconnected to operate in a closed, controlled environment.

  - (U) ($294K) Reconfigurable C4ISR Lab: The JBC Lab provides a learning and experimentation environment to assess promising technology that will meet CINC's stated requirements. The Lab is a composite of the Defense Information Infrastructure, providing Solaris and NT platforms and networks as building blocks for a given assessment. Capabilities include WAN/LAN emulation, network services, collaboration tools, network management tools, data collection, and performance analysis. The Lab is able to provide communications at the unclassified U.S. SECRET, Coalition SECRET, NATO SECRET, and Special Compartmented

Information (SCI) levels. Typically, projects use the lab to conduct assessments in a closed, controlled environment prior to including warfighters in a distributed event.

- (U) Joint Integration and Interoperability (JI&I). USJFCOM will collect, consolidate and prioritize real world interoperability needs on behalf of the Joint warfighter leveraging the annual CINC survey. The JI&I will serve as a repository for these issues and will produce a single serialized and prioritized "list" of C/S/A interoperability concerns that can be attacked in a synchronized manner. This prioritized list will be provided to the JROC for endorsement. Following endorsement of the prioritized list, the JI&I will act as a routing function to recommend the best option to conduct assessments, insert technology or develop non-material solutions via a transition fund support more rapid DOTMLPF synchronized fielding of validated remedy sets. FY 03 plans are identified below:

  - ($2,036K) Coalition Multi-level Security: Multi-level security is the single biggest hurdle to interoperability with allies. JI&I will support an ACTD to demonstrate a multi-level security capability called Coalition Information Based Security (CIBS). In FY02 the ACTD will be ready to demonstrate/test. If the technology proves viable, the JI&I will support initial implementation and logistic support; coordination and testing with NSA and other intelligence organizations will be required; to bring this type of capability to the warfighter, the synchronization of the other DOTMLPF aspects will be required.

  - ($2,200K) Tactical Data Information Links (TADIL): JI&I will support TADIL interoperability issues for Homeland Security. The multi-TDL architecture supporting JTF Noble Eagle is managed by the NORAD CONUS Region Commander's JICO. The MTN operates over entire CONUS and includes TDL A, J, B, SADL, RADIL and fixed, ground-based RADAR data. JI&I will provide a DOTMLPF solution set that includes immediate Multi-TADIL management technology, communications support and Tactics Training and Procedures (TTP) for all CONUS operations. Long-term requirements development will also be conducted by JI&I for the future TADIL management system.

  - ($2,700K) Joint Automated Single Guard Solution (JSAGS): The process for exchanging information between security domains is inefficient and lacks standards causing a significant percentage of Secret information to be trapped on a top secret (JWICS) network and not shareable with allied and coalition partners. JASGS provides the CINCs with

technology that facilitates the exchange of multiple information types between U.S. Forces and Multinational partners across different security domains.

- ($1,800K) Collaborative Planning Tools (CPT): The JI&I will continue to deliver common CPT capability to additional CINCs beyond that approved by the JROC for initial implementation in FY02. This project continues to leverage the initial work by DISA and JBC which coordinated the selection/recommendation of a single joint solution for a set of tools that can make all CINCs interoperable through commercial software products.

- ($2,000K) Automatic Network Information Flow (ANIF): ANIF will provide the CINCs dynamic bandwidth management. ANIF consists of selected technologies that can aid the Joint Task Force (JTF) in installing networks that are capable of providing the users with end-to-end prioritized Quality of Service (QoS) and give the commanders' information managers the ability to dynamically reapportion bandwidth. ANIF guarantees the warfighters delivery of critical time-sensitive information during times of network congestion regardless of bandwidth constraints.

- ($800K) Joint Enroute Mission Planning and Rehearsal System Near Term (JEMPRS-NT): The CINCs require a suite of critical enroute and lateral communications, collaboration and planning tools that will support dynamic re-tasking of an "initial entry force" from the alert phase through execution phase/deep strike. JEMPRS-NT will enhance Dominate Maneuver and Rapid Decisive Operations (RDO) through all levels of warfare. JI&I will provide this initial enroute planning capability to USCENTCOM and SOCOM.

- ($1,800K) Network Security Management Correlation and Display (NSM C&D): Provides all CINC/JTF Commanders with a centrally monitored enterprise security management system designed to provide secure and reliable communications from network intrusion detection sensors, filters and correlates from among the millions of sensor-detected alerts, identifies significant security events/intrusions, provides a rules-based decision and recommendation responses capability, enables scalable web-based access to common operational picture for cyber attacks against DII and tactical networks and systems. The system maturity has been validated by JBC assessment and verified during Unified Vision 01 and JUICE 01. The capability has been implemented at FEMA and LIWA.

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305188N PROGRAM ELEMENT TITLE: Joint (C4ISR) Battle Center (JBC) PROJECT NUMBER: X2456 PROJECT TITLE: Joint Battle Center (JBC)

C. (U) PROGRAM CHANGE SUMMARY:

FY 2001: Section 8086 .7% Pro-Rata Reduction (-$69K), Interoperability Process Software Tools (+$2,000K), Government-Wide Rescission: PL 106-554, Sec 1 (-$21K), SBIR Assessment (-$247K).
FY 2002: Section 8123: Management Reform Initiative (-$120K), Section 8032: FFRDC (-$5K).

D. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 2001 ACTUAL	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) OMN 1C6C (JBC/JI&I)	12,310	15,216	15,490	15,742	15,989	15,974	15,959	Cont	Cont

E. (U) ACQUISITION STRATEGY

- FY 2000-3. The JBC/JI&I do not have a major contract for their RDT&E efforts. Equipments that are required to support our various projects are either bought from other service contracts and/or from the GSA schedule. Services are provided by other services and/or various vendors with expertise on a specific assessment we are accomplishing.

EXHIBIT R-3, FY 2001 RDT&E,N PROJECT COST ANALYSIS DATE:FEBRUARY 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305188N PROJECT NUMBER: X2456

PROGRAM ELEMENT TITLE: Joint (C4ISR) Battle Center (JBC) PROJECT TITLE: JBC

Exhibit R-3 Cost Analysis (page 1)											Date: Feb 2002		
APPROPRIATION/BUDGET ACTIVITY 1319/BA 7			PROGRAM ELEMENT: 0305188N								PROJECT NAME AND NUMBER: JBC/X2456		
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Dev Support Equip Acquisition	MIPR	GSA Schedule	617	373	Var	670	Var	672	Var	Cont	Cont	Cont
Systems Engineering	C-CPFF	S. Carolina Res.		1887	09/01	43	09/02					
Systems Engineering	C-CPFF	ODU	255	112	01/01	394	03/02	396	10/02	Cont	Cont	Cont
Government Engineering Supt	C-CPFF	General Dynamics	450	389	04/01	641	03/02	657	11/02	Cont	Cont	Cont
Contractor Engineering Supt	C-CPFF	SAIC		0		121	11/01	121	11/02	Cont	Cont	Cont
Government Engineering Supt	MIPR	Various DoD	1592	691	Var	1176	Var	1178	Var	Cont	Cont	Cont
Travel	N/A	N/A		31	Var	123	Var	125	Var	Cont	Cont	Cont
Subtotal Product Development			2914	3483		3168		3149				
Remarks:												
Systems Engineering	C-CPFF	ODU	206	81	01/01	399	03/02	401	10/02	Cont	Cont	Cont
Contractor Engineering Supt	C-CPFF	General Dynamics	579	283	04/01	466	03/02	478	11/02	Cont	Cont	Cont
Contractor Engineering Supt	C-CPFF	SAIC		0		180	11/01	180	11/02	Cont	Cont	Cont
Government Engineering Supt	MIPR	Various DoD	1489	503	Var	1003	Var	998	12/02	Cont	Cont	Cont
Travel	N/A	N/A		0	Var	86	Var	87	Var	Cont	Cont	Cont
C/S/A Contracter Eng Supt	MIPR	Various DoD						3105	Var	Cont	Cont	Cont
C/S/A DOTMLPF Support	MIPR	Various DoD						1009	Var	Cont	Cont	Cont
Subtotal Support			2274	867		2134		6258				
Remarks												

EXHIBIT R-3, FY 2001 RDT&E,N PROJECT COST ANALYSIS DATE:FEBRUARY 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305188N PROJECT NUMBER: X2456
PROGRAM ELEMENT TITLE: Joint (C4ISR) Battle Center (JBC) PROJECT TITLE: JBC

Exhibit R-3 Cost Analysis (page 2)										Date: Feb 2002		
APPROPRIATION/BUDGET ACTIVITY: 1319/BA 7			PROGRAM ELEMENT: 0305188							PROJECT NAME AND NUMBER: JBC/X2456		
Cost Categories	Contract Method & Type	Performing Activity & Location	Total Pys Cost 99/00	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Dev Support Equipment Acq	MIPR	GSA Schedule	1119	1324	Var	1395	Var	1375	Var	Cont	Cont	Cont
Systems Engineering	C-CPFF	ODU	480	315	01/01	787	03/02	794	10/02	Cont	Cont	Cont
Systems Engineering	C-CPFF	MITRE	130	100	03/01	110	01/01	106	10/02	Cont	Cont	Cont
Systems Engineering	C-CPFF	Dataline	0	146	09/01							
Systems Engineering	C-CPFF	Anzus, Inc		0		458	10/01	458	10/02	Cont	Cont	Cont
Contractor Engineering Supt	C-CPFF	General Dynam	1175	1098	04/01	1806	11/01	1851	11/02	Cont	Cont	Cont
Contractor Engineering Supt	C-CPFF	SAIC		0		968	10/01	1018	10/02	Cont	Cont	Cont
Government Engineering Support	MIPR	Various DoD	5096	1946	Var	2342	Var	2322	Var	Cont	Cont	Cont
Travel (T&E)	N/A	N/A		179	Var	325	Var	330	Var	Cont	Cont	Cont
Subtotal T&E			8000	5108		8191		8254				
C/S/A Systems Eng Support	MIPR	Various						2158	Var	Cont	Cont	Cont
C/S/A Dev Support Equip Acq	MIPR	Various						2151	Var	Cont	Cont	Cont
Subtotal C/S/A Support								4309				
Remarks												
Total Cost			13188	9458		13493		21970		Cont	Cont	Cont
Remarks												

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305192N
PROGRAM ELEMENT TITLE: Joint Military Intelligence Program

(U) COST: (Dollars in Thousands)

PROJECT NUMBER TITLE	FY 2001 ACTUAL	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	COST TO COMPLETE	TOTAL PROGRAM
X2295 GCCS-I3	6,867	7,116	6,709	4,450	4,255	4,362	4,479	CONT.	CONT.
TOTALS	**6,867**	**7,116**	**6,709**	**4,450**	**4,255**	**4,362**	**4,479**	**CONT.**	**CONT.**

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: As directed in an Office of Secretary of Defense Intelligence Program Decision Memorandum (IPDM), Joint Military Intelligence Program (JMIP) funds, under Navy Executive Agency, were employed in FY01 to implement General Service (GENSER) Integrated Imagery and Intelligence (I^3) mission applications into the Defense Information Systems Agency (DISA) Global Command and Control System (GCCS) in support of the joint community. GCCS-I^3 provides Services and Agencies with a repository of C4I-related tools, services, and applications to minimize redundant development and maximize commonality and interoperability across the joint tactical intelligence community. This project is responsible for the development of interactive intelligence overlay integration, intelligence preparation of the battlefield, ground unit composition and decomposition, enemy intent and capability integration; terrain delimitation, trafficability and movement analysis; All Source Analysis System (ASAS) interface; weather data integration; collection status visualization; C2-to-Request for Information (RFI) integration; General Service (GENSER) and Sensitive Compartmented Information (SCI) synchronization and National Security Agency Technical Electronic Intelligence (NSA TECHELINT) data integration. It is expected that existing functionality within Army, Navy, Air Force and Marine Corps C4I systems will be leveraged to the maximum extent possible to meet these Joint requirements.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: These programs are funded under ENGINEERING AND MANUFACTURING DEVELOPMENT because it encompasses engineering and manufacturing development of new end-items prior to production approval decision.

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305192N
PROGRAM ELEMENT TITLE: Joint Military Intelligence Program

B. (U) PROGRAM CHANGE SUMMARY:

(U) Funding:

FY 01: Section 8086: .7% Pro-Rata Reduction (-$49K), Government-Wide Rescission (-$15K), Miscellaneous Department changes (-$69K). FY01 Net Change (-$133K).

FY02: Section 8123: Management Reform Initiative (-$63K)

FY 2003 RDT&E,N PROJECT JUSTIFICATION DATE: February 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305192N PROJECT NUMBER: X2295
PROGRAM ELEMENT TITLE: Joint Military Intelligence Program PROJECT TITLE: GCCS-I3

(U) COST (Dollars in thousands)

PROJECT NUMBER TITLE	FY 2001 ACTUAL	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	COST TO PROGRAM	TOTAL PROGRAM
X2295 GCCS-I3	6,867	7,116	6,709	4,450	4,255	4,362	4,479	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: As directed in an Office of Secretary of Defense Intelligence Program Decision Memorandum (IPDM), Joint Military Intelligence Program (JMIP) funds, under Navy Executive Agency, are to be employed in FY01 to implement GENSER Integrated Imagery and Intelligence (I^3) mission applications into the Defense Information Systems Agency (DISA) Global Command and Control System (GCCS) in support of the joint community. GCCS-I^3 provides Services and Agencies with a repository of C4I-related tools, services, and applications to minimize redundant development and maximize commonality and interoperability across the joint tactical intelligence community. This project is responsible for the development of interactive intelligence overlay integration, intelligence preparation of the battlefield, ground unit composition and decomposition, enemy intent and capability integration; terrain delimitation, trafficability and movement analysis; All Source Analysis System (ASAS) interface; weather data integration; collection status visualization; C2-to-Request for Information (RFI) integration; General Service (GENSER) and Sensitive Compartmented Information (SCI) synchronization and National Security Agency Technical Electronic Intelligence (NSA TECHELINT) data integration. It is expected that existing functionality within Army, Navy, Air Force and Marine Corps C4I systems will be leveraged to the maximum extent possible to meet these Joint requirements.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2001 Accomplishments:

- (U) ($792) Developed an automated tool to assist analysts in creating local Doctrine, Event, and Situational Templates to use in the Intelligence Preparation of the Battlefield (IPB) process. Selectable and user defined options resulted in maximum utility of the templates in conventional military operations and operations other than war.

- (U) ($594) Identified and integrated capability to analyze all dimensions (surface, sub-surface, endoatmospheric, exoatmospheric, electromagnetic, cyberspace, and human) of the battlespace, to determine an adversary's capability to operate in each and to visualize the battlespace and the full spectrum of adversary capabilities and potential courses of action (COA).

- (U) ($693) Built capabilities within GCCS-I^3 to exchange data with the Tactical Control System (TCS) directly from the Common Operational Picture (COP) display. Provided the ability to obtain direct data receipt of Unmanned Aerial Vehicle (UAV) data (both Moving Target Indicator (MTI) and imagery), selected inputs for payload control, and provided intelligence data to TCS to assist in the creation of flight planning routes for the auto-pilot UAV's.

- (U) ($594) Integrated Joint Targeting Toolbox (JTT) products into GCCS-I^3, providing seamless capability to edit and view the targeting tables in combination with the Order of Battle (OOB) maintenance function performed in GCCS-I^3. Provided a single set of interfaces (between JTT, the four Service C4I Systems and GCCS) for creation of target lists, selection of imagery, creation of task collection and plans. Provided means to share/disseminate electronic target folders, joint target lists, and no-strike lists to other command platforms.

- (U) ($396) Created a single imagery access and manipulation mechanism in GCCS-I^3 to enable multiple targeting and mission planning systems to access local and remote imagery repositories such as the Imagery Product Library (IPL), through a common interface.

- (U) ($396) Identified and integrated enhanced imagery analysis tools for integration into GCCS-I^3 to enable users to tile on the JTT. This enabled users to utilize the situational awareness display to search and display higher-quality imagery from other systems in order to support targeting-quality point mensuration capabilities.

- (U) ($396) Developed and integrated an auto-tracking mechanism into GCCS-I^3 imagery tools to enable users to automatically display moving objects within a video clip for display on the map for correlation with other sensor data such as Joint Surveillance Target Attack Radar System (JSTARS).

- (U) ($495) Developed capabilities to disseminate imagery products from national archives to users that require imagery but do not have the manning to support full-time imagery database administrator/managers. Scaled implementation of the database so that data can be managed on a smaller desktop environment to support lower life-cycle costs and increased productivity for low-end users.

- (U) ($1,153) Developed an SCI version of GCCS-I^3 that will be interoperable with an SCI version of GCCS.

- (U) ($1,358) Identified and integrated an Intelligence Surveillance Reconnaissance (ISR) Management Tool to form the ISR Battle Management portion of an Integrated Collaborative Collection Management capability. The ISR Battle Management tool enabled users to identify collection opportunities at the national and theater level and to overlay those on other assets to assist in the allocation of resources. Capability allowed users to receive feedback on status of requirements submitted to collection centers.

2. (U) FY 2002 PLAN:

- (U) ($991) Continue to develop an automated tool to assist analysts in creating local Doctrine, Event, and Situational Templates to use in the Intelligence Preparation of the Battlefield (IPB) process. Selectable and user defined options will result in maximum utility of the templates in conventional military operations and operations other than war.

- (U) ($1,773) Continue to identify and integrate capability to construct a shared Operations-Intel View and analyze all dimensions (surface, sub-surface, endoatmospheric, exoatmospheric, electromagnetic, cyberspace, and human) of the battlespace, in order to determine an adversary’s capability to operate in each and to visualize the battlespace and the full spectrum of adversary capabilities and potential courses of action (COA). These capabilities include receiving, displaying, and re-transmitting correlated information in the COP to support CINC and JTF ability to exercise command and control of forces. Migrate development of Intelligence and Imagery segments to meet Joint requirements (PC/NT) and DII COE.

- (U) ($694) Continue to build capabilities within GCCS-I^3 to exchange data with the UAV control system directly from the COP display. Provide the ability to obtain direct data receipt of Unmanned Aerial Vehicle (UAV) data (both Moving Target Indicator (MTI) and imagery), selected inputs for payload control, and provide intelligence data to the control station to assist in the creation of flight planning routes for the auto-pilot UAV's.

- (U) ($595) Continue to integrate Joint Targeting Toolbox (JTT) products into GCCS-I^3, providing seamless capability to edit and view the targeting tables in combination with the Order of Battle (OOB) maintenance function performed in GCCS-I^3. Provide a single set of interfaces (between JTT, the four Service C4I Systems and GCCS) for creation of target lists, selection of imagery, creation of task collection and plans. Provide means to share/disseminate electronic target folders, joint target lists, and no-strike lists to other command platforms.

- (U) ($496) Continue to create a single imagery access and manipulation mechanism in GCCS-I^3 to enable multiple targeting and mission planning systems to access local and remote imagery repositories such as the Imagery Product Library (IPL), through a common interface.

- (U) ($396) Continue to identify and integrate enhanced imagery analysis tools for integration into GCCS-I^3 to enable users to tile on the JTT. This will enable users to utilize the situational awareness display to search and display higher-quality imagery from other systems in order to support targeting-quality point mensuration capabilities.

- (U) ($496) Continue to develop and integrate an auto-tracking mechanism into GCCS-I^3 imagery tools to enable users to automatically display moving objects within a video clip for display on the map for correlation with other sensor data such as Joint Surveillance Target Attack Radar System (JSTARS).

- (U) ($496) Continue to develop capabilities to disseminate imagery and intel products from national archives to users that require imagery but do not have the manning to support full-time imagery and intel database administrator/managers. Scale implementation of the database so that data can be managed on a smaller desktop environment to support lower life-cycle costs and increased productivity for low-end users.

- (U) ($783) Develop a Multi Level Security version of GCCS I3 that will be interoperable across all domains, including an SCI version of GCCS. Develop and integrate tools for MIDB dissemination to/from allied forces relies on a periodic manual batch sanitization of the entire MIDB baseline and primarily occurs from the

US/national and theater levels down to the tactical customer. These tools will automate the process of coalition release of MIDB from the US/national theater level to coalition tactical units and also automate the dissemination of MIDB updates from the coalition tactical level to the US theater/national level.

- (U) ($396) Continue to integrate an Intelligence Surveillance Reconnaissance (ISR) management tool to form the ISR Battle Management portion of an integrated collaborative collection capability. The ISR Battle Management tools will enable users to identify collection opportunities at the national and theater level and to overlay those on other assets to assist in the allocation of resources. Capability will allow users to receive feedback on status of requirements submitted to collection centers.

3. (U) FY 2003 PLAN:

- (U) ($976) Continue to develop an automated tool to assist analysts in creating local Doctrine, Event, and Situational Templates to use in the Intelligence Preparation of the Battlefield (IPB) process. Selectable and user defined options will result in maximum utility of the templates in conventional military operations and operations other than war.

- (U) ($1,449) Continue to identify and integrate capability to construct a shared Operations-Intel View and analyze all dimensions (surface, sub-surface, endoatmospheric, exoatmospheric, electromagnetic, cyberspace, and human) of the battlespace, in order to determine an adversary's capability to operate in each and to visualize the battlespace and the full spectrum of adversary capabilities and potential courses of action (COA). These capabilities include receiving, displaying, and re-transmitting correlated information in the COP to support CINC and JTF ability to exercise command and control of forces. Migrate development of Intelligence and Imagery segments to meet Joint requirements (PC/NT) and DII COE.

- (U) ($683) Continue to build capabilities within GCCS-I^3 to exchange data with the UAV control system directly from the COP display. Provide the ability to obtain direct data receipt of Unmanned Aerial Vehicle (UAV) data (both Moving Target Indicator (MTI) and imagery), selected inputs for payload control, and provide intelligence data to the control station to assist in the creation of flight planning routes for the auto-pilot UAV's.

- (U) ($586) Continue to integrate Joint Targeting Toolbox (JTT) products into GCCS-I^3, providing seamless capability to edit and view the targeting tables in combination with the Order of Battle (OOB) maintenance function performed in GCCS-I^3. Provide a single set of interfaces (between JTT, the four Service C4I Systems and GCCS) for creation of target lists, selection of imagery, creation of task collection and plans. Provide

means to share/disseminate electronic target folders, joint target lists, and no-strike lists to other command platforms.

- (U) ($488) Continue to create a single imagery access and manipulation mechanism in GCCS-I^3 to enable multiple targeting and mission planning systems to access local and remote imagery repositories such as the Imagery Product Library (IPL), through a common interface.

- (U) ($390) Continue to identify and integrate enhanced imagery analysis tools for integration into GCCS-I^3 to enable users to tile on the JTT. This will enable users to utilize the situational awareness display to search and display higher-quality imagery from other systems in order to support targeting-quality point mensuration capabilities.

- (U) ($488) Continue to develop and integrate an auto-tracking mechanism into GCCS-I^3 imagery tools to enable users to automatically display moving objects within a video clip for display on the map for correlation with other sensor data such as Joint Surveillance Target Attack Radar System (JSTARS).

- (U) ($488) Continue to develop capabilities to disseminate imagery and intel products from national archives to users that require imagery but do not have the manning to support full-time imagery and intel database administrator/managers. Scale implementation of the database so that data can be managed on a smaller desktop environment to support lower life-cycle costs and increased productivity for low-end users.

- (U) ($771) Continue to develop a Multi Level Security version of GCCS I3 that will be interoperable across all domains, including an SCI version of GCCS. Develop and integrate tools for MIDB dissemination to/from allied forces relies on a periodic manual batch sanitization of the entire MIDB baseline and primarily occurs from the US/national and theater levels down to the tactical customer. These tools will automate the process of coalition release of MIDB from the US/national theater level to coalition tactical units and also automate the dissemination of MIDB updates from the coalition tactical level to the US theater/national level.

- (U) ($390) Continue to integrate an Intelligence Surveillance Reconnaissance (ISR) management tool to form the ISR Battle Management portion of an integrated collaborative collection capability. The ISR Battle Management tools will enable users to identify collection opportunities at the national and theater level and to overlay those on other assets to assist in the allocation of resources. Capability will allow users to receive feedback on status of requirements submitted to collection centers.

B. (U) OTHER PROGRAM SUMMARY: Not applicable.

C. (U) ACQUISITION STRATEGY: Not applicable.

D. (U) SCHEDULE PROFILE: Not applicable. This is not an acquisition program with milestones.

FY 2003 RDT&E,N PROJECT COST ANALYSIS DATE: February 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305192N PROJECT NUMBER: X2295
PROGRAM ELEMENT TITLE: Joint Military Intelligence Program PROJECT TITLE: GCCS-I3

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Costs	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Software/Product Development												
1.1.1 Prime Mission Product	Various	Various	0	5,549	02/01	5,737	10/01	5,410	11/02	CONT.	CONT.	
Subtotal Product Development			0	5,549		5,737		5,410		CONT.	CONT.	
Remarks:												
System Engineering												
1.1.1 System Engineering	Various	Various	0	1,318	02/01	1,379	10/01	1,299	11/02	CONT.	CONT.	
Subtotal Support			0	1,318		1,379		1,299		CONT.	CONT.	
Remarks												

FY 2003 RDT&E,N PROJECT COST ANALYSIS DATE: February 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305192N PROJECT NUMBER: X2295
PROGRAM ELEMENT TITLE: Joint Military Intelligence Program PROJECT TITLE: GCCS-I3

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Operational Test & Evaluation			0	0		0		0				
Subtotal Operational T & E			0	0		0		0				
Remarks												
Project Management			0	0		0		0				
Subtotal Management			0	0		0		0				
Remarks												
Total Cost			0	6,867		7,116		6,709		CONT.	CONT.	

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification								DATE: February 2002			
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7**						R-1 ITEM NOMENCLATURE 0305204N Tactical Unmanned Aerial Vehicles					
COST ($ in Millions)	Prior Years Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost			**121.486**	**72.692**	**206.359**	**141.590**	**144.403**	**90.505**	**50.977**	**Continuing**	**Continuing**
A2478 Tactical Control System	**30.090**		*** 40.566**	**17.641**	**9.067**	**9.202**	**9.360**	**9.528**	**9.712**	**Continuing**	**Continuing**
A2479 Applied Technology	**10.111**		**** 14.676**								**24.787**
A2768 VTUAV	**34.750**		**66.244**	**47.795**	**43.602**						**192.391**
A2910 Joint Technology Center/Sys Integration Lab	*******			**2.300**	**1.690**	**1.691**	**1.688**	**1.685**	**1.682**	**Continuing**	**Continuing**
A3061 BAMS UAV					**152.000**	**130.697**	**133.355**	**79.292**	**39.583**	**Continuing**	**Continuing**
A9113 VTOL UAV MPR Study	********			**4.956**							**4.956**
Non Add: FY 2003 Cost of War: BAMS UAV (Classified)					**28.300**	**14.300**	**26.700**	**40.000**	**48.000**		
Quantity of RDT&E Articles	**2**		**3**		**2**						**7**

* The FY 2001 budget for PU A2478 reflects a $3.000M Congressional add for the Joint Forces Command Operational Test Bed for TCS which was reduced by $.027 million for Congressional Reductions and executed under A2669. The FY02 budget reflects a $2M congressional add for JOTBS support which was reduced by $0.02M for undistributed congressional reductions.
** The FY 2001 budget for PU A2479 reflects a $7.000M Congressional add for the MSAG Array Technology for Applied Technology which was reduced by $.064 million for Congressional Reductions and executed under A2670.
***Joint Technology Center/System Integration Lab, PU A2910, was executed under A2478, Tactical Control System in prior years.
**** The FY 2002 budget for PU A9113 reflects a $5M congressional add for conducting a VTOL UAV MPR study, reduced by $0.044M for an undistributed congressional reduction.

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program provides for the development of Tactical Unmanned Aerial Vehicle (TUAV) systems for DoD that provide warfighters with a dedicated capability for day/night aerial Reconnaissance, Surveillance and Target Acquisition (RSTA); intelligence, communications/data dissemination; electronic warfare; weather data collection to support combat operations; minefield detection; and nuclear, biological and chemical reconnaissance in limited adverse weather. Specifically:

TCS: Efforts are underway to develop a Tactical Control System (TCS) to provide interoperablity for command and control of the present and future Tactical and Medium Altitude Endurance (MAE) UAVs and their payloads utilized by the military services for RSTA and combat assessment. TCS has the requirement to provide connectivity to service designated C4I systems and the objective requirement to interface with Global Hawk High Altitude Endurance (HAE) UAV system. TCS is being developed in concert with the development of UAV concept of operations so as to ensure system functionality satisfies operational requirements. TCS development and testing is being accomplished via a Government/Industry team. In FY2000 Raytheon assumed total system performance responsibility for all software block developments.

Applied Technology (AT): AT supports the advancement of systems on the Naval UAV Roadmap/Long Range Plan, including P3I of currently fielded or EMD programs, requirements definition efforts, support to Concept of Operations (CONOPS) development efforts, and technology transition from science and technology efforts, leading to the next generation of Naval UAVs. Current AT efforts include the UAV Advanced Technology Review Board(ATRB), the Multi-Role Endurance (MRE) UAV requirements definition effort, small UAVs and miniaturized payloads and UAVs in Network Centric Warfare. AT also supports cooperative R&D arrangements with major allies and NATO, providing day-to-day management and policy oversight regarding UAV export control and foreign military sales case management.

Non-Add:
Cost of War-$28.3M in FY 2003 for classified effort associated with BAMS UAV.

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY BA-7**	R-1 ITEM NOMENCLATURE 0305204N Tactical Unmanned Aerial Vehicles

VTUAV: The Vertical Takeoff and Landing Tactical Unmanned Aerial Vehicle (VTUAV) will provide users real-time and near-real-time data required to support intelligence surveillance and reconnaissance (ISR) efforts without the use of manned aircraft or reliance on limited joint theater or national assets. Missions supported under ISR and accomplished by a VTUAV include over-the-horizon classification and targeting, mine countermeasures, battle management, chemical/biological agent reconnaissance and signals intelligence. The VTUAV would be an organic asset of the ship to which it is attached or deployed. The forte of the VTUAV is that it launches and recovers vertically and can operate from any/all air capable ships as well as confined land based areas. Other capabilities of the VTUAV include: autonomous waypoint navigation; automatic launch and recovery of the vehicle both ashore and afloat; incorporation of a heavy fuel engine; and the ability to incorporate modular mission payloads. The data from the VTUAV System would be provided to the user through standard DoD Command, Control, Communications, Computers and Intelligence(C4I) systems, architectures and protocols.

JTC/SIL: The Joint Technology Center/System Integration Laboratory provides a test- bed for UAV technology assessment, insertion, demonstration, and transfer, as well as simulation and exercise support.

BAMS UAV PROGRAM: SECNAV directed development of a Navy mission capable Global Hawk system as soon as practicable. This program will initiate development of a marinized Global Hawk in FY03.

VTOL UAV MPR Study: Congressional plus up for development of a prototype Maritime Patrol and Reconnaissance (MPR) mission with advanced surveillance sensor equipment on a Global Hawk for experimentation and for examining concepts of operation for use in conjunction with other MPR assets.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under operational systems development because it encompasses engineering and manufacturing development for upgrade of existing operational systems.

R-1 SHOPPING LIST - Item No. 208

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0305204N Tactical Unmanned Aerial Vehicles					PROJECT NUMBER AND NAME A2478 Tactical Control System					
COST ($ in Millions)	Prior Year Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
A2478 Tactical Control System			*** 40.566**	**17.641**	**9.067**	**9.202**	**9.360**	**9.528**	**9.712**	**Continuing**	**Continuing**
RDT&E Articles Qty (EDU)	2										**2**

* FY 2001 budget reflects a $3.000M Congressional add for the Joint Forces Command Operational Testbed which was reduced by $.027 million for Congressional Reductions and executed under A2669. FY02 includes a congressional plus up of $2.0M for JOTBS upgrades, and support of Navy Flight Activity. FY 02 $0.020 decrease for an undistributed congressional reduction.

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Tactical Control System (TCS) provides interoperability and commonality for mission planning, command, control, communications, and data dissemination for the current and future family of Tactical and Medium Altitude Endurance (MAE) Unmanned Aerial Vehicles (UAVs). It provides a full range of scaleable UAV capabilities from passive receipt of air vehicle and payload data to full air vehicle command and control. TCS functionality supports the joint warfighter with the software to receive, process, and disseminate the air vehicle and payload data from two or more different UAV types for reconnaissance, surveillance, and combat assessment. TCS also has an objective requirement to receive and disseminate payload information from the Global Hawk High Altitude endurance UAV. TCS supports seamless integration into the existing Command, Control, Communications Computers and Intelligence (C4I) architecture and interfaces with other manned and unmanned reconnaissance platforms and intelligence systems thereby providing information superiority through cross cueing. TCS maximizes the use of Commercial and Government off-the-shelf (COTS and GOTS) hardware and software wherever possible. TCS software will be interoperable and operate on existing standard service computer platforms and be compliant with the Assistant Secretary of Defense for Command, Control, Communications and Intelligence (ASD(C3I)) Joint Technical Architecture, Distributed Common Ground System (DCGS), Common Imagery Ground/Surface Station (CIGSS), and the United States Imagery Standards, and Defense Information Infrastructure/Common Operating Environment (DII/COE). The Systems Integrator, Raytheon, supports the assessment of system integration readiness prior to actual flight-testing. The NATO Naval Armaments Group, Project 35, has undertaken studies/technical demonstrations to define a common interoperable NATO UAV ground control system architecture. Canada and the United Kingdom have established TCS FMS cases, have procured TCS software/hardware, and are participating in TCS and NATO demonstrations.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0305204N Tactical Unmanned Aerial Vehicles	A2478 Tactical Control System

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

2. FY 2001 ACCOMPLISHMENTS:

- (U) ($ 1.281) Completed software development and Developmental testing (DT) of TCS Block 0 Engineering Development Unit (EDU #2).
- (U) ($30.268) Continued development of TCS Block1 (TUAV), conducted DT through Laboratory Sytem IntegrationTest (LSIT) with EDU #3, and continued development of TCS Block 2 (VTUAV), MAE back-fit ECP. Demonstrated Level V Command and control of a Shadow 600. Conducted successful test of ASAS, AFATDS, and JSTARS C4I systems.*
- (U) ($ 0.500) Continued General Test Support for Multiple Link Antenna System/Multi-function Self-Ailgned Gate Array Technology (MLAS/MSAG).
- (U) ($ 3.244) Continued development of training systems for TCS Block 2.
- (U) ($ 2.300) Supported Joint Technology Center/Systems Integration Lab (JTC/SIL) Multiple UAV Simulation Environment (MUSE) efforts.
- (U) ($ 2.973) Supported Joint Operational Test Bed System testing & experimentation support, system upgrades and risk reduction operations.

3. FY 2002 PLANS:

- (U) ($ 14.561) Complete development of TCS Block 1 (TUAV) through Laboratory Systems Integration Testing (LSIT), and continue development of TCS Block 2 (VTUAV) DT through OT testing.
- (U) ($ 0.500) Continue General Test Support for Multiple Link Antenna System/Multi-function Self-Aligned Gate Array Technology (MLAS/MSAG).
- (U) ($ 0.600) C4I Testing/Certification Assessments.
- (U) ($ 1.980) JOTBS-Complete system upgrades and participate in Millenium Challenge exercise.

4. FY 2003 PLANS:

- (U) ($ 8.567) Complete development of TCS Block 2 (VTUAV) DT through OT testing.
- (U) ($ 0.500) Continue General Test Support for Mulitple Link Antenna System/Multi-function Self-Aligned Gate Array Technology (MLAS/MSAG).

* Note. This line does not represent a programmatic change. Block 1and Block 2 are being developed concurrently by Raytheon under a single contract.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0305204N Tactical Unmanned Aerial Vehicles	A2478 Tactical Control System

(U) B. PROGRAM CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	40.576	15.801	
(U) Adjustments from the FY 2002 President's Budget:	-0.010	1.840	
(U) FY 2003 President's Budget Submit:	40.566	17.641	9.067

(U) C. CHANGE SUMMARY EXPLANATION:

(U) Funding: FY01 $0.010M decrease for for an undistributed congressional reductions. FY02 includes a congressional plus up of $2M for JOTBS upgrades and support of Navy flight activity, and a $0.160M decrease for an undistributed congressional reductions.

(U) Schedule:

The TCS schedule has been updated to reflect program realignment with the Army's TUAV and the Navy/Marine Corps VTUAV programs. In addition, program, engineering, test & evaluation, and contract milestone terminologies have been updated to reflect standard nomenclature and a more accurate description of terminology used in the current contract.

(U) Technical: N/A

(U) C. OTHER PROGRAM FUNDING SUMMARY: N/A

R-1 SHOPPING LIST - Item No. 208

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0305204N Tactical Unmanned Aerial Vehicles	A2478 Tactical Control System

(U) D. ACQUISITION STRATEGY:

The TCS Engineering Manufacturing Development (EMD) began in 2Q FY00. In 2Q FY01 EDU #2 was delivered to the Navy for testing. EDU #2 was shipped to Ft. Huachuca, AZ in the 4Q FY01 for United States Joint Forces Command (USJFCOM) use in Joint UAV CONOPS development. In 4Q FY01, TCS began hardware in the loop testing at AAI.

E. SCHEDULE PROFILE:

	FY 2001 1 2 3 4	FY 2002 1 2 3 4	FY 2003	TO COMPLETE
(U) Engineering Milestones				
Engineering Design Unit (EDU) Deliveries	Initiate 2Q/01	Complete 1Q/02		
FDR		Complete 3Q/02		

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0305204N Tactical Unmanned Aerial Vehicles	A2478 Tactical Control System

(U) E. SCHEDULE PROFILE: Continuation.

	FY 2001 1 2 3 4	FY 2002 1 2 3 4	FY 2003 1 2 3 4	TO COMPLETE
(U) T&E Milestones				
TCS Block 0 DT	Initiate 1Q/01 Complete 2Q/01			
TCS Block 1 DT through LSIT (TUAV DT)	Initiate 4Q/01	Complete 1Q/02		
TCS Block 2 DT through OT		Initiate 1Q/02	Complete 4Q/03	
TCS Joint DT				To Complete
C4I Testing/Certification Assessment	Initiate 3Q/01	Complete 3Q/02		

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)						DATE: **February 2002**						
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0305204N Tactical Unmanned Aerial Vehicles			PROJECT NUMBER AND NAME A2478 Tactical Control System						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Tactical Control System Developmen	C/CPAF	Raytheon, Falls Church, VA	17.406	20.875	02/01	12.567	11/01	6.860	11/02		57.708	57.708
Joint Operational TestBed System	WX	USJFCOM, Norfolk, VA		2.973	05/01	1.180	05/02				2.973	
TUAV System	MIPR	TUAV, Redstone, AL		0.808	11/00						0.808	
JOTBS Syst Upg/Millenium challenge	C/CFF	General Atomics				0.200	03/02					
JOTBS Syst Upg/Millenium challenge	C/CFF	Raytheon, Falls Church, VA				0.600	03/02					
Award Fees	C/CPAF	Raytheon, Falls Church,VA		1.461	09/01	0.880	06/02	0.385	12/02		2.726	
Subtotal Product Development			17.406	26.117		15.427		7.245			66.195	

Remarks:

Raytheon contract includes: Primary Software Development, Hardware Engineering, Systems Engineering, and Systems Integration
Millenium challenge system upgrades and support will be done through BOAs with General Atomics and Raytheon and are part of Congressional Plus-Up

Systems Engineering	WX	NSWC-Dahlgren, Va	2.740	1.704	11/00	0.190	12/01	0.190	12/02	Continuing	Continuing	
Systems Engineering	WX	NAWCAD, Pax River, MD	1.121	1.200	12/00							
*MUSE	MIPR	JTC/SIL, Redstone, AL	1.500	2.300	11/00						3.800	
Logistics Support	WX	Various	1.100	0.360	12/00							
Training	WX	NSWC-IH, Indian Head, MD	2.340	3.244	12/00							
Technical Engineering Services	WX	NAWCAD, Pax River MD/Other		1.521	12/00	0.734	12/01	0.896	12/02	Continuing	Continuing	
Human Computer Interface Develop	WX	NAWCAD, Pax River, MD	0.300	0.200	10/00							
Subtotal Support			9.101	10.529		0.924		1.086		Continuing	Continuing	

Remarks: * In FY 2002 MUSE will be executed under project unit A2910.

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0305204N Tactical Unmanned Aerial Vehicles				PROJECT NUMBER AND NAME A2478 Tactical Control System						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	MIPR	JITC, FT Huachuca, AZ		0.390	10/00	0.600	12/01					
Developmental Test & Evaluation	WX	CIRPAS, Monterey, CA	1.070	0.981	02/01						2.051	
Operational Test & Evaluation	WX, MIPR	Various	1.480								1.480	
General Test Support	WX	NSWC-Dahlgren, VA		0.500	03/01	0.500	12/01	0.500	12/02	Continuing	Continuing	
Subtotal T&E			2.550	1.871		1.100		0.500		Continuing	Continuing	
Remarks:												
Contractor Engineering Support	C/FFP	Summit, Waldorf, MD	0.100								0.100	0.100
Government Engineering Support	WX	NAWCAD, Pax River, MD	0.300								0.300	
Program Management Support	WX	Various	0.313	1.017	04/01	0.120	12/01	0.166	12/02	Continuing	Continuing	
Travel/Misc.	WX	Various	0.320	1.032	10/00	0.070	10/01	0.070	12/02	Continuing	Continuing	
							04/02					
Subtotal Management			1.033	2.049		0.190		0.236		Continuing	Continuing	
Remarks:												
Total Cost			30.090	40.566		17.641		9.067		Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST - Item No. 208

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0305204N Tactical Unmanned Aerial Vehicles					PROJECT NUMBER AND NAME A2479 Applied Technology (AT)					
COST ($ in Millions)	Prior Years Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
A2479 Applied Technology (AT)	**10.111**		**14.676***								**24.787**
RDT&E Articles Qty											

*The FY01 budget reflects a $7.000 M Congressional add for the Multi-function Self-Aligned Gate (MSAG) Array Technology for the Applied Technology (A2479) which was reduced by $.064 million and executed under A2670.

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Applied Technology (AT) supports the advancement of systems on the Naval UAV Roadmap/Long Range Plan, including P3I of currently fielded or EMD programs, requirements definition efforts, support to CONOPS development efforts, and technology transition from science and technology efforts, leading to the next generation of Naval UAVs. Current AT efforts include the UAV Advanced Technology Review Board (ATRB), the Multi-Role Endurance (MRE) UAV requirements definition effort, small UAVs and miniaturized payloads, and UAVs in Network Centric Warfare. AT is leading exploration of MRE concepts to better define system requirements. These defined requirements will then enable technology pull to draw industry into this growth area. Similar efforts are underway to develop mission definition and analysis for the Small and Micro UAVs. AT's technology focus also encourages approaches that are expected to address needs of Unmanned Combat Air Vehicle Systems. AT is the acquisition lead for the Naval UAV Advanced Technology Review Board (ATRB). The ATRB effort supports development of requirements definition and technology transition into existing and future Naval UAV programs. AT is also the focal point for working international initiatives to improve UAV integration into NATO Task Force Operations.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2001 ACCOMPLISHMENTS:
   - (U) ($2.662) Completed requirements definition, integration, demonstration, and test of small UAVs for USMC Interim Small Unit Remote Scouting System (I-SURSS) effort.
   - (U) ($2.292) Completed Phase II, System Design and Definition and Phase III, Systems Analysis and Risk Assessment of the MRE contracts.
   - (U) ($1.920) Completed demonstration of operational utility of key technologies endorsed by the UAV ATRB, including Touch Down Predictability (TDP) Landing Aid, and Plug and Play Modular Mission Payload (MMP) contracts.
   - (U) ($0.277) Supported the international initiatives to improve UAV integration into NATO Task Force Operations and common international support efforts.
   - (U) ($0.598) Directed by OSD C3I to fund UAV communications/payload integration effort, which will result in the ability to use US Government-owned communications assets to employ Predator worldwide.
   - (U) ($6.927) Continued to execute design, engineer and manufacture components using MSAG Technology for MLAS Demonstration.

2. FY 2002 PLANS: N/A

3. FY 2003 PLANS: N/A

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0305204N Tactical Unmanned Aerial Vehicles	A2479 Applied Technology (AT)

(U) B. PROGRAM CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	14.749		
(U) Adjustments from the FY 2002 President's Budget:	-0.073		
(U) FY 2003 President's Budget Submit:	14.676		

(U) C. CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 01 $0.073M decrease for undistributed congressional reductions.

(U) C. OTHER PROGRAM FUNDING SUMMARY: N/A

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0305204N Tactical Unmanned Aerial Vehicles	A2479 Applied Technology (AT)

(U) D. ACQUISITION STRATEGY:The key objectives of this program element are: Technology transition and insertion of emerging technologies to Naval UAV programs to address warfighter needs; Requirements definition and roadmapping in support of the Naval UAV Roadmap/Long Range Plan, including CONOPS development efforts and feedback into the development and acquisition process; Development of Naval UAV Network Centric Warfare Concepts; International cooperation to avoid unnecessary and costly duplication and enhance interoperability; And focusing basic research on future needs through the ATRB process. AT supports the ATRB, the MRE requirements definition effort, small UAVs and miniaturized payloads, and UAVs in Network Centric Warfare, including P3I of currently fielded or EMD programs, requirements definition efforts, and technology transition from science and technology efforts, leading to the next generation of Naval UAVs. Participates in international cooperative agreements to share common interest developments.

(U) E. SCHEDULE PROFILE:

	FY 2001 1 2 3 4	FY2002	FY2003	To Complete
T&E Milestones				
Small UAV Rqmts Def and CONOPS Dev/Tests (I-SURSS)	Completed 3Q/01			
Ship Based UCARS TDP Landing Aid Dev/Tests	Completed 3Q/01			
MMP Plug and Play Dev/Tests	Completed 3Q/01			
See and Avoid Validation efforts	Completed 3Q/01			
Contracts Milestones				
New technology demos	Completed 3Q/01			
MRE Risk Assessment	Completed 3Q/01			

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA7**		PROGRAM ELEMENT 0305204N Tactical Unmanned Aerial Vehicles			PROJECT NUMBER AND NAME A2479 Applied Technology (AT)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Product Development	Sect 845	Boeing, Long Beach, CA	0.781	0.347	10/00						1.128	1.128
	Sect 845	Lockheed, Ft. Worth, TX	0.660	0.215	10/00						0.875	0.875
	Sect 845	GDIS, Bloomington, MN	0.446	0.050	10/00						0.496	0.496
	Sect 845	Northrop, Pico Rivera,CA	0.700	0.290	10/00						0.990	0.990
	C/FFP	Aeroteam, Petach Israel	0.220								0.220	0.220
	Sect 845	ITT Gilfillan, Nuys, CA	2.089	6.062	04/01						8.151	8.151
	Sect 845	Battlespace, Arlington, VA	0.435	0.850	04/01						1.285	1.285
	C/FFP	Sierra Nevada, Sparks, NV	0.250								0.250	0.250
	WX	NSWC Indian Head, MD	0.234	0.369	01/01						0.603	
	PD	NAVSEA, Washington DC	0.370								0.370	
	MIPR	Joint Spectrum Center, MD		0.300	01/01						0.300	
	WX	NAWCAD, Pax River, MD		0.832	04/01						0.832	
	MP	Wright Patterson AFB, OH		0.598	06/01						0.598	
Subtotal Product Development			6.185	9.913							16.098	

Remarks:

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Exhibit R-3 Cost Analysis (page 2)					DATE: **February 2002**						
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0305204N Tactical Unmanned Aerial Vehicles			PROJECT NUMBER AND NAME A2479 Applied Technology (AT)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Technical & Engineering Support	WX	NAWCWD, China Lake, CA	0.650	0.165	11/00						0.815	
Technical & Engineering Support	WX	NAWCAD, Pax Riv., Md	0.665	1.987	11/00						2.652	
Technical & Engineering Support	WX	NSWC Crane, IN	0.150								0.150	
Technical & Engineering Support	WX	NSWC Dahlgren, VA	0.570								0.570	
Subtotal Support			2.035	2.152							4.187	

Remarks:

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Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0305204N Tactical Unmanned Aerial Vehicles			PROJECT NUMBER AND NAME A2479 Applied Technology (AT)							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Demonstration/Exercises	WX	NAWCAD, Pax Riv	0.950	0.835	11/00						1.785	
Demonstration/Exercises	WX	NAWCWD, China Lake, CA		0.272	11/00						0.272	
Demonstration/Exercises	WX	NSWC Crane, IN		0.165	12/00						0.165	
Demonstration/Exercises	MP	Warner Robins AFB,		0.038	05/01						0.038	
Subtotal T&E			0.950	1.310							2.260	
Remarks:												
Program Management Support	WX	NAWCAD, Pax Riv, Md	0.841	1.241	03/01						2.082	
Travel	WX	NAWCAD, Pax Riv, Md	0.100	0.060	10/00						0.160	
Subtotal Management			0.941	1.301							2.242	
Remarks:												
Total Cost			10.111	14.676							24.787	
Remarks:												

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2002			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0305204N Tactical Unmanned Aerial Vehicles					PROJECT NUMBER AND NAME A2768 Vertical Take-off Landing UAV					
COST ($ in Millions)	Prior Year Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
A2768 Vertical Take-off Landing UAV	**34.750**		**66.244***	**47.795**	**43.602**						**192.391**
RDT&E Articles Qty	2		3								**5**

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Vertical Takeoff and Landing Tactical Unmanned Aerial Vehicle (VTUAV) will provide users real-time and near-real-time data required to support intelligence surveillance and reconnaissance (ISR) efforts without the use of manned aircraft or reliance on limited joint theater or national assets. Missions supported under ISR and accomplished by a VTUAV include over-the-horizon classification and targeting, mine countermeasures, battle management, chemical/biological agent reconnaissance and signals intelligence. The VTUAV would be an organic asset of the ship to which it is attached or deployed. The forte of the VTUAV is that it launches and recovers vertically and it can operate from any/all air capable ships as well as confined land based areas. The quantities above represent the air vehicle and payload hardware sets procured in EMD and LRIP 1.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2001 ACCOMPLISHMENTS:
   - (U) ($54.067) Continued contractor EMD system design, fabrication and component testing. Procured initial LRIP.
   - (U) ($ 5.630) Continued testing & engineering, logistics and integration support
   - (U) ($ 2.453) Completed operational assessment and initiated developmental testing in the 4th Qtr
   - (U) ($ 4.094) Funded contractor engineering management, program technical management and management support

2. FY 2002 PLANS:
   - (U) ($34.004) Continue contractor EMD design, fabrication and testing
   - (U) ($ 7.616) Continue test & engineering, logistics and integration support
   - (U) ($ 2.727) Complete developmental testing and initiate operational test and evaluation
   - (U) ($ 3.448) Continue contractor engineering management, program technical management and management support

3. FY 2003 PLANS:
   - (U) ($30.265) Complete contractor EMD design, fabrication and testing
   - (U) ($ 7.060) Complete test & engineering, logistics and integration support
   - (U) ($ 4.338) Complete developmental testing and initiate operational test and evaluation
   - (U) ($ 1.939) Complete contractor engineering management, program technical management and management support

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0305204N Tactical Unmanned Aerial Vehicles	A2768 Vertical Take-off Landing UAV

(U) B. PROGRAM CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	66.428	48.248	
(U) Adjustments from the FY 2002 President's Budget:	-0.184	-0.453	
(U) FY 2003 President's Budget Submit:	66.244	47.795	43.602

CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 01 $0.184M decrease for reprioritization of requirements within the Navy. FY02 $0.444M decrease for an undistributed congressional reduction and a $.009M decrease for a congressional reduction to Federally Funded Research and Development centers.

(U) Schedule: LRIP 1 was awarded in 3rd Qtr FY 2001. IDR and FDR were previously submitted as PDR and CDR, respectively. These are the same reviews but the titles have been changed so that contract and program terminology agrees. FDR was completed in the 2Q of FY01. The operational assessment was completed in 2Q FY01.

(U) Technical: Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0305204N Tactical Unmanned Aerial Vehicles	A2768 Vertical Take-off Landing UAV

(U) D. ACQUISITION STRATEGY: VTUAV program had a combined Milestone I/Milestone II decision in 2Q FY 2000. Development, fabrication and developmental test of the VTUAV system began in 2Q FY 2000 and will continue through FY 2001/2002. The low rate initial production (LRIP 1) was awarded in 3Q FY 2001 with operational testing being conducted in FY 2003. The LRIP system will be available for Fleet Use in 1Q FY 2004. Initial planning has a VTUAV system defined as: Air Vehicles (A/Vs), Ground Control Stations (GCSs), modular mission payloads, remote data terminals, and spares. Connectivity into the DOD C4I architecture would be provided by the GCS, which is to be TCS compatible. Although not currently designated as a joint program, the VTUAV program can accommodate Joint Services (Army, Navy and Marine Corps) as well as U.S. Coast Guard requirements.

(U) E. SCHEDULE PROFILE:

	FY 2001	FY 2002	FY 2003	To Complete
(U) Program Milestones				
Program Initiation, MS II	2Q/01			
EMD	2Q/01			
Fleet Use				1Q/04
(U) Engineering Milestones				
IDR *	4Q/00			
FDR *	2Q/01			
(U) T&E Milestones				
Operational Assessment	2Q/01			
Developmental Testing		2Q/02-3Q/03		
Operational Testing			3Q/03-1Q/04	
(U) Contract Milestones				
LRIP 1	Awarded 3Q/01			

* IDR and FDR were previously submitted as PDR and CDR, respectively, these are the same reviews but the titles have been changed so that contract and program terminology agrees. In addition, the term Operational Assessment, which is the correct effort, replaces the Informal OPTEVFOR Eval.

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0305204N Tactical Unmanned Aerial Vehicles				PROJECT NUMBER AND NAME A2768 Vertical Take-off Landing UAV						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Design/Hardware Development	C/CPIFAF	NGC-Ryan, San Diego, CA	27.081	53.598	04/01	30.989	02/02	28.645	11/02		140.313	140.313
Award Fees	C/CPIFAF	NGC-Ryan, San Diego,CA	0.972	0.469	12/00	3.015	04/02	1.620	11/02		6.076	
Subtotal Product Development			28.053	54.067		34.004		30.265			146.389	
Remarks:												
Test & Engineering Support	WX	NAWC-AD, Pax River, MD	2.533	2.260	11/00	2.595	11/01	3.678	11/02		11.066	
Logistics -Training Development	WX	NSWC, Indian Head, MD	0.395	0.615	11/00	1.413	11/01	2.000	11/02		4.423	
Logistics - Technical Data	WX	NSWC, Crane, IN	0.300	0.300	11/00	0.300	11/01	0.390	11/02		1.290	
Logistics Technical Support	WX	NAWC-WD, Lakehurst, NJ	0.214	0.560	11/00	0.605	11/01	0.252	11/02		1.631	
Logistics Technical Support	WX	NAWC-AD, Pax River, MD	0.280	0.945	11/00	0.787	11/01	0.740	11/02		2.752	
Ship Integration Support	PD	NAVSEA, Arlington, VA	0.600	0.950	12/00	1.916	11/01				3.466	
Ship Integration Support	WX	NSWC, Indian Head, MD	0.153								0.153	
Subtotal Support			4.475	5.630		7.616		7.060			24.781	
Remarks:												

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Exhibit R-3 Cost Analysis (page 2)

DATE: **February 2002**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-7**

PROGRAM ELEMENT: 0305204N Tactical Unmanned Aerial Vehicles

PROJECT NUMBER AND NAME: A2768 Vertical Take-off Landing UAV

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NAWC-AD, Pax River, MD	0.306	1.608	12/00	1.198	12/01	2.566	11/02		5.678	
Operational Test & Evaluation	MIPR	VARIOUS	0.097	0.455	03/01	1.139	03/02	1.652	11/02		3.343	
Range Testing	WX	China Lake, CA		0.390	10/00	0.390	11/01	0.120	11/02		0.900	
Subtotal T&E			0.403	2.453		2.727		4.338			9.921	

Remarks: Operational Test & Evaluation performing activities include OPTEVFOR and MCOTEA.

Contractor Engineering Management	C/FFP	H.J. Ford, Lexington Park, MD	1.297	1.400	11/00	1.300	11/01	0.900	11/02		4.897	4.897
Program Technical Management	WX	NAWC-AD, Pax River, MD		1.050	11/00	1.120	11/01	0.510	11/02		2.680	
Program Management	MIPR	CECOM/MITRE	0.390	0.205	11/00	0.175	11/01	0.076	11/02		0.846	
Travel	WX	NAWC-AD, Pax River, MD	0.132	0.105	11/00	0.105	11/01	0.060	11/02		0.402	
Miscellaneous	Various	Various		1.334	11/00	0.748	11/01	0.393	11/02		2.475	
Subtotal Management			1.819	4.094		3.448		1.939			11.300	

Remarks:

Total Cost			34.750	66.244		47.795		43.602			192.391	

Remarks:

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0305204N Tactical Unmanned Aerial Vehicles					PROJECT NUMBER AND NAME A2910 Joint Technology Center/Systems Integration Lab					
COST ($ in Millions)	Prior Year Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
A2910 Joint Technology Center/Systems Integration Lab				**2.300**	**1.690**	**1.691**	**1.688**	**1.685**	**1.682**	**Continuing**	**Continuing**
RDT&E Articles Qty (EDU)											

* These efforts were previously executed under PU A2478, Tactical Control System.

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The JTC/SIL is the center of technical excellence for the DoD family of UAVs including tactical, medium altitude, high altitude endurance, and future UAVs. This joint facility provides a cost-effective test-bed for UAV technology assessment, insertion, demonstration, and transfer, as well as simulation and exercise support.

A primary product being developed by the JTC/SIL is the Multiple Unified Simulation Environment (MUSE) which is a system that provides a real-time, interoperable hardware, and operator-in-the-loop simulation environment of multiple intelligence systems that is integrated with larger force on force simulations. It creates a realistic operational environment which supports: an embedded training capability for multiple Program Managers; tools to minimize acquisition and life cycle costs and schedule impacts; a mechanism for the assessment of military utility; architecture, CONOPS, and TTP development and refinement; the ability to conduct emerging concepts experimentation, future systems exploration, systems integration, and technology insertion; applications for Joint and Service specific warfighting exercises; and C4I Optimization. Canada and the United Kingdom have established TCS FMS cases have procured MUSE software/hardware.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2002 PLAN:
   - (U) ($0.367) Laboratory Sustainment
   - (U) ($1.033) MUSE Development
   - (U) ($0.900) Maintenance, Licenses, and Equipment Purchases

2. FY 2003 PLAN:
   - (U) ($0.367) Laboratory Sustainment
   - (U) ($0.823) MUSE Development
   - (U) ($0.500) Maintenance, Licences and Equpiment Purchases

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APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0305204N Tactical Unmanned Aerial Vehicles	A2910 Joint Technology Center/Systems Integration Lab

(U) B. PROGRAM CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:		2.300	
(U) Adjustments from the FY 2002 President's Budget:		0.000	
(U) FY 2003 President's Budget Submit:		2.300	1.690

(U) C. CHANGE SUMMARY EXPLANATION:

(U) Funding: N/A

(U) Schedule: The JTC/SIL schedule is determined by a MUSE User's Working Group which meets semi-annually to determine recommended development priorities and is approved by a Council of Colonels with representation from each Service and JFCOM with oversight by OASD C3I and USD AT&L.

(U) Technical: N/A

(U) C. OTHER PROGRAM FUNDING SUMMARY: N/A

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APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0305204N Tactical Unmanned Aerial Vehicles	A2910 Joint Technology Center/Systems Integration Lab

(U) D. ACQUISITION STRATEGY:
The JTC/SIL assists ISR system Program Managers with expertise in systems engineering, prototyping, training, and warfighter support.
This joint facility provides a cost-effective test-bed for UAV and ISR technology assessment, insertion, demonstration, and transfer, as well as simulation and exercise support. It creates a realistic operational environment which supports: an embedded training capability for multiple Program Managers; tools to minimize acquisition and life cycle costs and schedule impacts; a mechanism for the assessment of military utility; architecture, CONOPS, and TTP development and refinement; the ability to conduct emerging concepts experimentation, future systems exploration, systems integration, and technology insertion; applications for Joint and Service specific warfighting exercises; and C4I Optimization.

	FY 2001 1 2 3 4	FY 2002 1 2 3 4	FY 2003 1 2 3 4	TO COMPLETE
***(U) Program Milestones				
User's Working Group		Initiate 2Q/02 Complete 4Q/02		
Council of Colonels		Initiate 2Q/02 Complete 4Q/02		
(U) Engineering Milestones				
AVSI TCS BL I Update		Complete 2Q/02		
AVSI TCS BL II Update		Complete 2Q/02		
Devlopment Advanced Tactical Aerial Reconnaissance System simulation		Complete 4Q/02		
P3 Flight Model		Complete 4Q/02		
VTUAV Flight Model		Complete 4Q/02		
Integrate JSIPS-N		Complete 4Q/02		
National Space Assets Enhancements		Complete 4Q/02		
Obscurants			Complete 4Q/03	
Automatic TargetRecognition			Complete 4Q/03	
CDL Emulator			Complete 4Q/03	
Diurnal Effects			Complete 4Q/03	
Fixed Target Damage			Complete 4Q/03	
Laser Designator			Complete 4Q/03	
Enhanced Terrain Data Base			Complete 4Q/03	
C4I Enhancement			Complete 4Q/03	

(U) T&E Milstones N/A

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APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0305204N Tactical Unmanned Aerial Vehicles			PROJECT NUMBER AND NAME A2910 Joint Technology Center/Systems Integration Lab						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
MUSE Development	MIPR	Redstone Arsenal, AL				1.033	11/01	0.823	11/02	Continuing	Continuing	Continuing
Award Fees												
Subtotal Product Development						1.033		0.823		Continuing	Continuing	Continuing
Remarks:												
Development equipment purchases	MIPR	Redstone Arsenal, AL				0.900	11/01	0.500	11/02	Continuing	Continuing	Continuing
Subtotal Support						0.900		0.500		Continuing	Continuing	Continuing
Remarks:												

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APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0305204N Tactical Unmanned Aerial Vehicles			PROJECT NUMBER AND NAME A2910 Joint Technology Center/Systems Integration Lab							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Subtotal T&E												
Remarks:												
Laboratory Sustainment	MIPR	Redstone Arsenal, AL				0.367	11/01	0.367	11/02		0.734	
Subtotal Management						0.367		0.367			0.734	
Remarks:												
Total Cost						2.300		1.690		Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST - Item No. 208

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0305204N Tactical Unmanned Aerial Vehicles					PROJECT NUMBER AND NAME A3061 BAMS UAV					
COST ($ in Millions)	Prior Year Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
A3061 BAMS UAV					**152.000**	**130.697**	**133.355**	**79.292**	**39.583**	**Continuing**	**Continuing**
Non-Add: FY 2003 Cost of War: BAMS UAV (Classified)					**28.300**	**14.300**	**26.700**	**40.000**	**48.000**		
RDT&E Articles Qty (EDU)					**2**						

U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Broad Area Maritime Surveillance (BAMS) UAV will provide users global coverage through persistent long range surveillance.The acquisition of a Global Hawk system is critical in the development of a Long-Dwell Standoff ISR capability for the Naval Service. The initial system will be used for experimentation towards answering the BAMS UAV requirement. Concepts of Operation (CONOPS) will explore wide area surveillance of maritme and land targets, stand off strike support, Signal Intelligence (SIGINT) collection and communication relay capabilities. This effort provides for RDT&E,N funds to cover phase 1 of the program. The Navy will utilize the existing Air Force contract to purchase Global Hawk and developmental assets outfitted with maritime mission oriented sensors.

(U) B. PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2003 PLANS:

-(U) ($ 152.000) Initiate acquisition of one marinized Global Hawk system, and initial spares. Marinized Global Hawk system consists of 2 Air Vehicles, 1 MCE, and 2LREs. Start maritime payload development.

Non-Add:
Cost of War-$28.3M in FY 2003 for classified effort associated with BAMS UAV.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0305204N Tactical Unmanned Aerial Vehicles	A3061 BAMS UAV

(U) B. PROGRAM CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:			
(U) Adjustments from the FY 2002 President's Budget:			
(U) FY 2003 President's Budget Submit:			152.000

C. CHANGE SUMMARY EXPLANATION:

(U) Funding: N/A

(U) Schedule: NA

(U) Technical: N/A

(U) C. OTHER PROGRAM FUNDING SUMMARY:

		FY 02	FY 03	FY 04	FY 05	FY 06	FY 07
RDTE,N	0605500N Multi-Mission Maritime A/C	53.329	74.531	218.861	198.566	437.913	405.369
APN	019300 Multi-Mission Maritime A/C					19.672	138.496

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0305204N Tactical Unmanned Aerial Vehicles	A3061 BAMS UAV

(U) D. ACQUISITION STRATEGY:

Begin development of full system in FY03. Full system will be bought from Air Force under existing Global Hawk contract. Delivery of system will be in FY05.

E. SCHEDULE PROFILE:

	FY 2001	FY 2002	FY 2003	TO COMPLETE
(U) Contract Milestones				
Initial Delivery Order			Initiate 1Q	
Payload PDR			Initiate 2Q	
Payload CDR			Initiate 4Q	

R-1 SHOPPING LIST - Item No. 208

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0305204N Tactical Unmanned Aerial Vehicles			PROJECT NUMBER AND NAME A3061 BAMS UAV						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Marinized Global Hawk Develop.	MIPR	USAF						139.400	10/02	Continuing	Continuing	
Award Fees												
Subtotal Product Development						0.000		139.400		Continuing	Continuing	
Remarks:												
Systems Engineering	WX	NAWC-AD, Pax River, MD						3.800	Various	Continuing	Continuing	
Logistics Support	WX	Various						5.500	Various	Continuing	Continuing	
Subtotal Support								9.300		Continuing	Continuing	
Remarks:												

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0305204N Tactical Unmanned Aerial Vehicles				PROJECT NUMBER AND NAME A3061 BAMS UAV						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Tes & Evaluation	WR	NAWC-AD, Pax River,MD						1.400	10/02			
Subtotal T&E								1.400				
Remarks:												
Contractor Engineering Support	C/FFP							0.400	10/02		0.400	
Proigram Management	WX	NAWC-AD, Pax River,MD						1.500	10/02			
Subtotal Management								1.900			1.900	
Remarks:												
Total Cost								152.000		Continuing	Continuing	
Remarks:												

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2002			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0305204N Tactical Unmanned Aerial Vehicles					PROJECT NUMBER AND NAME A9113 VTOL UAV MPR STUDY					
COST ($ in Millions)	Prior Year Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
A9113 VTOL UAV MPR STUDY				**4.956**							**4.956**
RDT&E Articles Qty (EDU)											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Congressional plus up for development of a prototype Maritime Patrol and Reconnaissance (MPR) mission with advanced surveillance sensor equipment on a Global Hawk for experimentation and for examining concepts of operation for use in conjunction with other MPR assets

(U) B. PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2002 PLAN:

- (U) ($4.956) Begin study of: MPR mission; validity of Broad Area Maritime Surveillance (BAMS) approach for MPR; initial concept of operations for use of an HAE UAV; and future year plans for continued development of the UAV approach for MPR. Report to Congress will be produced in accordance with congressional language.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0305204N Tactical Unmanned Aerial Vehicles	A9113 VTOL UAV MPR STUDY

(U) B. PROGRAM CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:			
(U) Adjustments from the FY 2002 President's Budget:		4.956	
(U) FY 2003 President's Budget Submit:		4.956	

(U) C. CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 02 reflects a congressional plus up of $5M offset by a $0.044 decrease for an undistributed congressional reduction.

(U) Schedule: N/A

(U) Technical: N/A

(U) C. OTHER PROGRAM FUNDING SUMMARY: N/A

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0305204N Tactical Unmanned Aerial Vehicles	A9113 VTOL UAV MPR STUDY

(U) D. ACQUISITION STRATEGY: N/A

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0305204N Tactical Unmanned Aerial Vehicles			PROJECT NUMBER AND NAME A9113 VTOL UAV MPR STUDY						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Conduct Study	C/FP	NGC Beth Page				2.000	06/02				3.500	3.500
Award Fees												
Subtotal Product Development						2.000					2.000	
Remarks:												
Engineering Support	WX	NAWC-WD				2.000	04/02					
Subtotal Support												
Remarks:												

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0305204N Tactical Unmanned Aerial Vehicles			PROJECT NUMBER AND NAME A9113 VTOL UAV MPR STUDY						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
	WX											
Subtotal T&E												
Remarks:												
Program Management	WX	NAWC-AD Pax River, MD				1.000	04/02				1.000	
Subtotal Management						1.000					1.000	
Remarks:												
Total Cost						3.000					3.000	
Remarks:												

R-1 SHOPPING LIST - Item No. 208

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification								DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7**						R-1 ITEM NOMENCLATURE 0305206N Airborne Reconnaissance Advanced Development (ARAD)					
COST ($ in Millions)	Prior Year Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost			**25.964**	**17.381**	**5.469**	**13.713**	**21.602**	**18.985**	**19.351**	**Continuing**	**Continuing**
H2694 Advanced Digital Sensors			*** 12.274**	***** 8.163**	**2.582**	**13.713**	**21.602**	**18.985**	**19.351**	**Continuing**	**Continuing**
R2476 Framing Reconnaissance Camera	**29.124**		**** 13.690**	****** 9.218**	**2.887**						**54.919**
Quantity of RDT&E Articles											

* The FY 2001 budget reflects Congressional adds for Upgrade Story Finder ($3.0 million) and Weight Reduction Study ($4.0 million offset by $.037 million for Congressional Reductions) which will be executed under H2990 and H2991 respectively. **The FY 2001 budget reflects Congressional adds for Advanced Focal Plane Shutter ($3.0 million), Hyperspectral Modular Upgrades ($4.0 million), and Sensor Upgrade ($5.0 million) which will be executed under R2676, R2807, and R2992 respectively. *** The FY2002 budget reflects Congressional adds for Mission System Weight Development ($2.5M). ****The FY2002 includes Congressional adds reflecting Hyperspectral Modular Upgrades ($2.6 million) which will be executed under R2746 and Electro-Optical (EO) Framing Technologies ($6.6 million) which will be executed under R2676.

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Provides funds for the development of sensor systems to improve present airborne reconnaissance capabilities. The developments are driven by evolving collection requirements and modern technology advances. The developments allow for the necessary changes required to meet an integrated, objective airborne reconnaissance architecture as defined in the Integrated Airborne Reconnaissance Strategy (IARS) and amplified in the Airborne Reconnaissance Information Technical Architecture (ARITA). The Advanced Sensors Development Program implements successful proof-of-concept efforts accomplished in the Advanced Technology Program, other Service/Agency developments, and Congressionally-funded initiatives leading to producible sensor systems for airborne platforms. Upon successful sensor prototype demonstration, technology sensor developments are turned over to the Services for procurement and platform integration. This effort focuses on developments, which support sensor system interoperability and standardization of multi-Service and multi-platform applications. The advanced sensor developments will provide the technology transition modules for operational use necessary for the overall migration of the airborne fleet (manned and unmanned) to a Joint Airborne SIGINT Architecture (JASA) (i.e., sensors, ground systems, data links, and platforms), and provide the mechanism required for timely dissemination of intelligence information to operational forces. The development and modification of the lead integration aircraft (EP-3E) for the initial JASA modules will provide a mechanism to begin development and operational assessment of the Joint SIGINT Avionics Family (JSAF) components. Coordinated and complementary airborne sensor development across the military Services and the Defense and Intelligence Agencies are being established for inclusion into the JASA. The two primary objectives for Advanced Technology funding is to evaluate the utility and maturity of technology for airborne reconnaissance applications and to reduce the risk of employing emerging technologies in system upgrades, new system acquisitions, or Advanced Concept Technology Demonstrations (ACTDs), by integrating and exercising them in developmental and operational tests. These technologies help satisfy the requirements of the objective architecture set forth in the Integrated Airborne Reconnaissance Strategy (IARS). These technology investments are also identified in the Airborne Reconnaissance Technology Program Plan (ARTPP), published in November 1994. Transition of sensors to AF TARS, and Navy TARPS-CD and SHARP programs have been successful.

(U) JUSTIFICATION OF BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2002			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0305206N Airborne Reconnaissance Advanced Development (ARAD)					PROJECT NUMBER AND NAME H2694 Advanced Digital Sensors					
COST ($ in Millions)	Prior Year Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost			* **12.274**	** **8.163**	**2.582**	**13.713**	**21.602**	**18.985**	**19.351**	**Continuing**	**Continuing**
RDT&E Articles Qty											

* The FY 2001 budget reflects Congressional adds for Upgrade Story Finder ($3.0 million) and Weight Reduction Study ($4.0 million offset by $.037 million for Congressional Reductions) which will be executed under H2990 and H2991 respectively. ** The FY2002 budget reflects a Congressional add for Mission System Weight Development ($2.5M).

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Provides funds for the development of sensor systems to improve present airborne reconnaissance capabilities. The developments are driven by evolving collection requirements and modern technology advances. The developments allow for the necessary changes required to meet an integrated, objective airborne reconnaissance architecture as defined in the Integrated Airborne Reconnaissance Strategy (IARS) and amplified in the Airborne Reconnaissance Information Technical Architecture (ARITA). The advanced sensor program includes technical analyses, systems engineering assessments, planning, and development for advanced airborne sensor systems. This effort focuses on developments which support sensor system interoperability and standardization of multi-Service and multi-platform applications. The EP-3E will undergo a series of block modification via an evolutionary acquisition process beginning in FY 2001. These block modifications have collectively been designated as the Joint SIGINT Avionics Family (JSAF) Modification Program (JMOD). The advanced sensor developments described herein will provide the technology transition modules necessary for the overall migration of the airborne fleet to a Joint Airborne SIGINT Architecture (JASA) (i.e., sensors, ground systems, data links, and platforms), and provide the mechanism required for timely dissemination of intelligence information to operational forces.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2001 ACCOMPLISHMENTS:
   - (U) ($. 570) Initiated Story Maker fusion software development for JMOD 2.
   - (U) ($1.074) Continued Story FinderJSAF MOD 1 aircraft Integration.
   - (U) ($ .320) Continued Story Book Phase I-III (including CPC) JSAF MOD 1 aircraft Integration into SIL.
   - (U) ($ .334) Initiated Story Finder DT/Operational Test (OT) planning on EP-3E JSAF MOD 1 aircraft.
   - (U) ($ .300) Conducted Story Book CPC Phase I-III DT/OT planning on EP-3E JSAF MOD1 aircraft.
   - (U) ($ .326) Continued joint Story Book Phase IV (including CPC) development.
   - (U) ($2.414) Continued JMOD1 prototype installation
   - (U) ($2.973) Upgraded Story Finder
   - (U) ($3.963) Conducted Weight Reduction Study.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0305206N Airborne Reconnaissance Advanced Development (ARAD)	H2694 Advanced Digital Sensors

(U) PROGRAM ACCOMPLISHMENTS

2. FY 2002 PLANS:

(U) ($1.306) Continue Story Maker development, integration and demonstration for JMOD 2.
(U) ($2.468) Initiate Story Finder and continue software development, integration and demonstration for JMOD 2.
(U) ($ .300) Complete Story Book upgrade (Including CPC).
(U) ($ .200) Conduct Story Book/Story Finder upgrades aircraft DT/OT (including OPAL/ONYX).
(U) ($ .192) Conduct Story Classic (Special Collections) ALD-9 replacement engineering study.
(U) ($ .250) Initiate JMOD Imagery engineering investigations.
(U) ($ .520) Initiate development of hardware and software interface for Story Teller upgrades into JMOD 2, including CDL.
(U) ($ .500) Conduct JMOD 2 PDR.
(U) ($2.427) Continue mission system weight development.

3. FY 2003 PLANS:

(U) ($ .462) Continue Story Finder integration and demonstration for JMOD 2
(U) ($ .450) Continue Story Maker development for JMOD 2.
(U) ($ .494) Initiate Story Classic Imagery development.
(U) ($ .490) Incorporate Story Finder MPEG integration into JMOD 2 SIL.
(U) ($ .300) Continue Story Teller CDL integration into JMOD 2.
(U) ($ .386) Conduct JMOD 2 CDR

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0305206N Airborne Reconnaissance Advanced Developm	H2694 Advanced Digital Sensors

(U) B. PROGRAM CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY2002 President's Budget:	12.302	5.735	
(U) Adjustments from the President's Budget:	-0.028	2.428	
(U) FY2003 President's Budget Submit:	12.274	8.163	2.582

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY2001 decrease of $.028 million is for a reprioritization of requirements within the Navy. The FY 2002 net increase of $2.428 million consists of a Congressional Add for EP3 Mission System weight reduction initiative ($2.5M) offset by a decrease for an undistributed congressional reduction ($.072M).

(U) Schedule: Program Milestones - FY01 LRIP for JSAF MOD 1 moved to 1Q/02 to reflect the rebaseline of the EP-3E JSAF Block Mod 1 program due to OPNAV directed integration of additional capabilities. The FY02 JSAF MOD 1 FRP milestone was moved to 2Q/03 to reflect the rebaseline of the EP-3E JSAF Block Mod 1 program. Engineering Milestones - The JSAF Mod 2 PDR moved from FY03 to 3Q/02 to reflect the rebaseline of the EP-3E JSAF Block Mod 2 program. The JSAF MOD 2 CDR moved from FY04 to 1Q/03 to reflect the rebaseline of the EP-3E JSAF Block Mod 2 program. T&E Milestones - The FY 01 JSAF MOD 1 Acft DT/OT milestone moved to 3Q/02 to reflect the rebaseline of the EP-3E JSAF Block Mod 1 program. Contract Milestones - The 1Q/02 JSAF MOD 2 TKI R&D contract award was added to reflect the baseline for EP-3E JSAF Block Mod 2 program.

(U) Technical: Not Applicable.

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete	Total Cost
APN-5 EP-3E OSIP 11-01	4.559	36.352	26.061	32.772	17.632	35.212	30.917	476.768	660.273

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N / BA-7	0305206N Airborne Reconnaissance Advanced Development (ARAD)	H2694 Advanced Digital Sensors	

(U) D. ACQUISITION STRATEGY: Leverages/complements Air Force, Naval Research Laboratory, Office of Naval Research RDT&E efforts for technology insertions into EP-3E/VPU productions programs.

(U) E. SCHEDULE PROFILE:

	FY 2001	FY 2002	FY 2003	TO COMPLETE
(U) Program Milestones		1Q/02 LRIP for JSAF MOD 1 (Story Book and Story Finder)	2Q/03 JSAF MOD 1 FRP (MS III) (Story Book and Story Finder)	2Q/06 JSAF MOD 2 FRP 2Q/04 Initiate JASA Compliance for VPU SRR
(U) Engineering Milestones		3Q/02 JSAF MOD 2 PDR	1Q/03 JSAF MOD 2 CDR	
(U) T&E Milestones		3Q/02 JSAF MOD 1 Acft DT/OT		3Q/05 JSAF MOD 2 Acft DT/OT (Story Maker)
(U) Contract Milestones		1Q/02 JSAF MOD 2 R&D Development Contract Award		

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Exhibit R-3 Cost Analysis (page 1)

DATE: **February 2002**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-7**

PROGRAM ELEMENT: 0305206N Airborne Reconnaissance Advanced Developm

PROJECT NUMBER AND NAME: H2694 Advanced Digital Sensors

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Story Finder	SS/CPFF	BTG, Vienna, VA	0.898								0.898	0.898
Story Finder	SS/CPFF	Raytheon Systems	0.772	1.400	01/01	2.115	02/02			9.699	13.986	13.986
Story Finder	SS/CPFF	Lockheed Martin	0.106	0.207	01/01	0.664	02/02	0.386	12/02	2.096	3.459	3.459
Fusion Software Development	SS/CPFF	GTE, Sunnyvale, CA	1.046			0.760	02/02	0.550	12/02	4.561	6.917	6.917
Story Teller CDL Integration	SS/CPFF	Raytheon Systems						0.100	12/02		0.100	0.100
Story Book MPEG Integration	SS/CPFF	Raytheon Systems						0.400	12/02		0.400	0.400
CPC Development	SS/CPFF	Raytheon Systems	1.447								1.447	1.447
JMOD1 Prototype Installation	SS/CPFF	Raytheon Systems		2.414	01/01						2.414	2.414
ESM System Modification	SS/CPFF	Raytheon Systems		2.868	01/01						2.868	2.868
Lightweight Equipment & Racks Devel.	SS/CPFF	Raytheon Systems		1.801	01/01	2.427	04/02				4.228	4.228
CPC Upgrade	SS/CPFF	Raytheon Systems								13.100	13.100	13.100
Subtotal Product Development			4.269	8.690		5.966		1.436		29.456	49.817	

Remarks:

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)

DATE: **February 2002**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-7**

PROGRAM ELEMENT: 0305206N Airborne Reconnaissance Advanced Developm

PROJECT NUMBER AND NAME: H2694 Advanced Digital Sensors

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Systems Engineering	C/CPFF	GRCI, Vienna, VA	0.800	0.671	12/00	0.523	03/02	0.262	12/02	2.788	5.044	5.044
Systems Engineering	WX	NAWC,WD, China Lake, CA	0.253	2.290	12/00	0.968	02/02	0.534	12/02	Continuing	Continuing	
Systems Engineering	WX	NSWC, Dahlgren, VA		0.414	12/00	0.175	02/02			Continuing	Continuing	
Subtotal Support			1.053	3.375		1.666		0.796		Continuing	Continuing	

Remarks:

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2) | DATE: **February 2002**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-7** | PROGRAM ELEMENT: 0305206N Airborne Reconnaissance Advanced Developm | PROJECT NUMBER AND NAME: H2694 Advanced Digital Sensors

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX	NAWC,AD Pax River, MD	0.050			0.200	02/02				0.250	
Story Finder	WX	NRL, MD	0.100							Continuing	Continuing	
Subtotal T&E			0.150			0.200				Continuing	Continuing	

Remarks:

Technical Support	WX	NAWC,AD Pax River, MD	0.462	0.209	12/00	0.331	02/02	0.350	12/02	Continuing	Continuing	
Subtotal Management			0.462	0.209		0.331		0.350		Continuing	Continuing	

Remarks:

Total Cost			5.934	12.274		8.163		2.582		Continuing	Continuing	

Remarks:

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2002			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0305206N Airborne Reconnaissance Advanced Development					PROJECT NUMBER AND NAME R2476 Framing Reconnaissance Camera					
COST ($ in Millions)	Prior Year Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**29.124**		**13.690***	**9.218****	**2.887**						**54.919**
RDT&E Articles Qty											

*The FY 2001 budget reflects Congressional adds for Advanced Focal Plane Shutter ($3.0 million), Hyperspectral Modular Upgrades ($4.0 million), and Sensor Upgrade ($5.0 million). **The FY2002 includes Congressional adds reflecting Hyperspectral Modular Upgrades ($2.6 million) which will be executed under R2746 and Electro-Optical (EO) Framing Technologies ($6.6 million) which will be executed under R2676.

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Provides funds for the development of sensor systems to improve present airborne reconnaissance capabilities. The developments are driven by evolving collection requirements and modern technology advances. The developments allow for the necessary changes required to meet an integrated, objective airborne reconnaissance architecture as defined in the Integrated Airborne Reconnaissance Strategy (IARS) and amplified in the Airborne Reconnaissance Information Technical Architecture (ARITA). The Advanced Sensors Development Program implements successful proof of-concept efforts accomplished in the Advanced Technology Program, other Service/Agency developments, and Congressionally-funded initiatives leading to producible sensor systems for airborne platforms. Upon successful sensor prototype demonstration, technology sensor developments are turned over to the Services for procurement and platform integration. This effort focuses on developments, which support sensor system interoperability and standardization of multi-Service and multi-platform applications. The advanced sensor developments will provide the technology transition modules for operational use necessary for the overall migration of the airborne fleet (manned and unmanned) to a Joint Airborne SIGINT Architecture (JASA) (i.e., sensors, ground systems, data links, and platforms), and provide the mechanism required for timely dissemination of intelligence information to operational forces. The development and modification of the lead integration aircraft (EP-3E) for the initial JASA modules will provide a mechanism to begin development and operational assessment of the Joint SIGINT Avionics Family (JSAF) components. Coordinated and complementary airborne sensor development across the military Services and the Defense and Intelligence Agencies are being established for inclusion into the JASA.

There are two primary objectives for the Advanced Technology funding: (1) to evaluate the utility and maturity of technology for airborne reconnaissance applications and (2) to reduce the risk of employing emerging technologies in system upgrades, new system acquisitions, or Advanced Concept Technology Demonstrations (ACTDs), by integrating and exercising them in developmental and operational tests. These technologies help satisfy the requirements of the objective architecture set forth in the Integrated Airborne Reconnaissance Strategy (IARS). These technology investments are also identified in the Airborne Reconnaissance Technology Program Plan (ARTPP), published in November 1994. Transition of sensors to AF TARS, and Navy TARPS-CD and SHARP programs has been successful. Congress added funds in FY 2001 to (1) develop and Advanced Focal Plane Array for smaller electro-optical framing size, (2) develop and upgrade the Sensor to and 18 inch lens and integrate an existing dual banned sensor into the TARP pod, and (3) to upgrade the Airborne Reconnaissance System Hyperspectral Module.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0305206N Airborne Reconnaissance Advanced Development (ARAD)	R2476 Framing Reconnaissance Camera

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2001 ACCOMPLISHMENTS:
   (U) ($1.000) Completed flight test program of dual band camera.
   (U) ($ .234) Completed evaluation of dual band camera test results.
   (U) ($ .647) Performed flight demonstration of precision strike capable reconnaissance camera.
   (U) ($4.000) Began development of Hyperspectral Modular upgrades.
   (U) ($4.980) Began development of sensor upgrades.
   (U) ($2.829) Began design of advanced focal plane shutter.

2. FY 2002 PLANS:
   (U) ($1.000) Begin development of JPEG 2000 image decompression boards
   (U) ($0.700) Perform Hyperspectral Target Cueing Demonstration
   (U) ($4.941) Begin EO Framing Camera Upgrades for Precision Strike
   (U) ($2.577) Complete Hyperspectral Modular Upgrades

3. FY 2003 PLANS:
   (U) ($1.500) Complete develolpment of JPEG 2000 Image Decompression Boards
   (U) ($1.000) Perform end-to-end demonstration using JPEG 2000 Boards
   (U) ($0.387) Develp real time data fusion processor

R-1 SHOPPING LIST - Item No. 209

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0305206N Airborne Reconnaissance Advanced Developm	R2476 Framing Reconnaissance Camera

(U) B. PROGRAM CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	13.833	0.000	
(U) Adjustments from the President's Budget:	-0.143	9.218	
(U) FY2003 President's Budget Submit:	13.690	9.218	2.887

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY2001 net decrease of $.143 million is due to congressional reductions. The FY2002 net increase of $9.218 million is due to congressional adds of $9.3 million offset by congressional reductions of $.082 million.

(U) Schedule: Changed to address Congressional adds.

(U) Technical: Not Applicable.

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete	Total Cost
PE 0305207N, DARP, Special Project Aircraft	27.443	29.335	10.649	10.939	11.41	11.589	11.764	11.764	197.157

R-1 SHOPPING LIST - Item No. 209

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N / BA-7	0305206N Airborne Reconnaissance Advanced Development	R2476 Framing Reconnaissance Camera	

(U) D. ACQUISITION STRATEGY: The program is to develop framing reconnaissance camera technology to support improved capabilities for programs such as SHARP.

(U) E. SCHEDULE PROFILE:

	FY 2001	FY 2002	FY2003	TO COMPLETE
(U) Program Milestones				
(U) Engineering Milestones	2Q/01 Completed dual band flight tests 3Q/01 Began Precision Strike Flight Test 3Q/01 Began development of Hyperspectral Modular Upgrades 3Q/01 Began development of sensor upgrades 4Q/01 Began design of advanced focal plane shutter 4Q/01 Performed Flight demostration of Percision Strike capable of reconnaissance camera	3Q/02 Begin EO Framing Camera Upgrades for Precision Strike 4Q/02 Complete Hyperspectral Modular Upgrades 2Q/02 Begin development of JPEG 2000 Image Decompression Boards 4Q/02 Perform Hyperspectral target cueing demo.	3Q/03 Complete Development of JPEG 2000 Boards 4Q/03 Demonstrate Autonomous Hyperspectral cueing 4Q/03 Develop real-time fusion processor	
(U) T&E Milestones				
(U) Contract Milestones				

R-1 SHOPPING LIST - Item No. 209

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)											DATE: **February 2002**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0305206N Airborne Reconnaissance Advanced Develop			PROJECT NUMBER AND NAME R2476 Framing Reconnaissance Camera							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
IR Array	C/CPFF	Recon Opt., Barrington, IL	1.661								1.661	1.661	
Dual Band Camera	C/CPFF	Recon Opt., Barrington, IL	2.300								2.300	2.300	
Long Range Camera	C/CPFF	Recon Opt., Barrington, IL	2.000								2.000	2.000	
Hyperspectral Module	C/CPFF	Recon Opt., Barrington, IL	1.500								1.500	1.500	
Camera for Hyperspectral	C/CPFF	Recon Opt., Barrington, IL	1.000								1.000	1.000	
Visible and SWIR Modules	C/CPFF	ITS, Honolulu, HI	3.300								3.300	3.300	
Precision Strike System	C/CPFF	Recon Opt., Barrington, IL	1.250								1.250	1.250	
Flight Tests	WR	NRL, Wash DC	0.900								0.900	0.900	
Compression board development	C/CPFF	Space Dyn. Lab. Logan, UT	3.400								3.400	3.400	
Precision Strike camera	C/CPFF	Recon Opt., Barrington, IL	1.290								1.290	1.290	
Dual Band Camera	C/CPFF	Recon Opt., Barrington, IL	4.038								4.038	4.038	
100 Megapixel Camera Test	C/CPFF	Recon Opt., Barrington, IL	4.513								4.513	4.513	
Hyperspectral Modular Upgrades	CPFF	Recon Opt., Barrington, IL		4.000							4.000	4.000	
Development Upgrade Integrate Sensor	CPFF	Recon Opt., Barrington, IL		4.980		2.577	02/02				7.557	7.557	
Develop advanced focal plane shutter	WR	MIT Lincoln Lab, Bedford MA		2.829							2.829	2.829	
Hyperspectral Target Cueing Demo	CPFF	Recon Opt., Barrington, IL				0.700	02/02				0.700	0.700	
EO Framing Camera Upgrades	CPFF	Recon Opt., Barrington, IL				4.941	05/02				4.941	4.941	
Decompression Board Development	CPFF	Space Dyn. Lab. Logan, UT				1.000	02/02	1.500	10/02		2.500	2.500	
Real Time Data Fusion Processor	TBD	TBD						0.387	10/02		0.387	0.387	
Subtotal Product Development			27.152	11.809		9.218		1.887			50.066	50.066	

Remarks:

R-1 SHOPPING LIST - Item No. 209

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0305206N Airborne Reconnaissance Advanced Develop			PROJECT NUMBER AND NAME R2476 Framing Reconnaissance Camera						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Camera test support	C/CPFF	Various	0.172							2.904	3.076	3.076
Subtotal T&E			0.172							2.904	3.076	
Remarks:												
Contractor Engineering Support	C/CPFF	Various	1.400	1.417	11/00			1.000	10/02		3.817	3.817
Systems Support	WR	NRL, Wash, DC	0.400	0.464							0.864	0.864
Subtotal Management			1.800	1.881				1.000			4.681	
Remarks:												
Total Cost			29.124	13.690		9.218		2.887			54.919	
Remarks: This program has no support costs.												

R-1 SHOPPING LIST - Item No. 209

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification									DATE: FEBRUARY 2002			
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7**						R-1 ITEM NOMENCLATURE 0305207N Manned Reconnaissance Systems						
COST ($ in Millions)		Prior Years Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost		**72.108**		**44.520**	**38.132**	**11.166**	**15.149**	**13.601**	**13.712**	**13.838**	**0.000**	**222.226**
* Z0117	Reef Point	**0.396**		**3.176**	**6.987**	**8.295**	**13.267**	**13.601**	**13.712**	**13.838**	**0.000**	**73.272**
** E2673	F/A-18E/F Tactical Reconnaissance (SHARP)	**71.712**	**	**41.344**	**27.180**	**2.871**	**1.882**				**0.000**	**144.989**
W9117	Advance Multiband Surveillance Systems	**0.000**			**3.965**						**0.000**	**3.965**
* Executed at a higher level of classification - no project R2, project unit changed from R0117 to Z0117.												
** Includes $2.817 executed under PE 0204136N, Project E2350 (FY1998), Project R2673 (FY1999), Projects R2673, E2673, & E2808 (FY 2000).												
*** The FY 2001 budget reflects an $18 million Congressional add for SHARP risk reduction executed under E2808.												
**** The FY 2002 budget reflects an $6 million Congressional add for SHARP POD development and procurement.												
Quantity of RDT&E Articles		**2**		**2**	**1**							**5**

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Provides funds for the development of a dual-spectral-band reconnaissance pod camera system capable of being deployed on tactical aircraft. The camera will have simultaneous visible and infrared imaging capability and provide digital images in national standard formats. The system will be capable of collecting imagery, recording on-board, and transmitting simultaneously to a ground receiving station. Cameras operating in multiple spectral bands will be introduced as the technology evolves. The target aircraft is the F/A-18E/F. A prototype system was flight demonstrated in June 2001. Provision will be made to accommodate transmission of Synthetic Aperture Radar (SAR) data. The system will operate semi-autonomously from the aircraft maximizing standard interfaces. Emphasis will be placed on using commercially available subsystems and components in an open architecture so that evolutionary designs in cameras, processors, transmitters, and recorders can be introduced seamlessly via competitive procurement procedures. An aggressive development schedule will be embraced driving toward an operational capability by May 2003. The purpose of the aggressive development schedule is to have an operational capability ready to replace the F-14 Tactical Air Reconnaissance Pod System (TARPS) due to retire beginning in 2003.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing systems.

(U) Details for project Z0117 are held at a higher classification.

R-1 SHOPPING LIST - Item No. 210

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: FEBRUARY 2002			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0305207N Manned Reconnaissance Systems					PROJECT NUMBER AND NAME E2673 F/A-18E/F Tactical Reconnaissance (SHARP)					
COST ($ in Millions)	Prior Years Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	* **71.712**		** **41.344**	*** **27.180**	**2.871**	**1.882**				**0.000**	**144.989**
RDT&E Articles Qty	2		**2**	1							**5**

*Includes $2.817 million executed under PE 0204136N, project E2350 (FY 1998) funding executed under PE 0305207N, project R2673 (FY 1999), and was executed under projects R2673, E2673, & E2808 in FY 2000. The FY 2000 budget reflects a $9.000 million and Congressional add for SHARP risk reduction (E2808); which has been reduced by $.084 million for Congressional undistributed reductions.

** The FY 2001 budget reflects an $18 million Congressional add for SHARP risk reduction, executed under E2808 which was reduced by $.165 million for Congressional undistributed reductions.

*** The FY 2002 budget refelcts a $6 million Congressional add for SHARP pod development and procurement.

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Shared Reconnaissance Pod (SHARP) provides funds for the development of a dual-spectral-band reconnaissance pod camera system capable of being deployed on tactical aircraft. The camera will have simultaneous visible and infrared imaging capability and provide digital images in national standard formats. The system will be capable of collecting imagery, recording on-board, and transmitting simultaneously to a ground receiving station. Cameras operating in multiple spectral bands will be introduced as the technology evolves. The target aircraft is the F/A-18E/F. A prototype system was flight demonstrated in June 2001. Provision will be made to accommodate transmission of Synthetic Aperture Radar (SAR) data. The system will operate semi-autonomously from the aircraft maximizing standard interfaces. Emphasis will be placed on using commercially available subsystems and components in an open architecture so that evolutionary designs in cameras, processors, transmitters, and recorders can be introduced seamlessly via competitive procurement procedures. An aggressive development schedule will be embraced driving toward an operational capability by May 2003.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2001 ACCOMPLISHMENTS:

- (U) ($.190) Program Management coordinated development activities during the EMD Phase of the Program.

- (U) ($17.532) Continued SHARP EDM development. Upgraded design as needed to support pod qualification. Completed pod design for EMD phase and fabricated 2 EDM pods. Integrated Weapons Replaceable Assembly (WRA)'s and began initial aircraft integration on F/A-18 E/F aircraft. Procured SHARP subsystem units.

- (U) ($9.723) Procured sensor for EMD phase.

- (U) ($2.379) Continued work on F/A-18 SCS software. Began integration and testing of the SHARP subsystems.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **FEBRUARY 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0305207N Manned Reconnaissance Systems	E2673 F/A-18 Tactical Reconnaissance

- (U) ($5.219) Completed coding for RMS to support integration of the EMD phase. Began BIT software development and testing and began integration of the F/A-18E/F SCS.

- (U) ($1.202) Continued logistics planning and performed preliminary design of support equipment to ensure the Rapid Prototype could be transitioned to a fleet asset.

- (U) ($.800) Procured EMD Datalink

- (U) ($4.299) Performed EMD test and evaluation.

2. FY 2002 PLANS:

- (U) ($.184) Continue program management to coordinate development activities during the EMD Phase of the Program.

- (U) ($.280) Continue to perform systems engineering to develop EDM pods, design/develop the (software/hardware) interface to the F/A-18 aircraft. Coordinate with other subsystems (F/A-18 EW, Weapons, and Radar) to ensure system compatibility. Coordinate with ground station activities to ensure compatibility.

- (U) ($8.118) Procure five additional sensors for EMD phase.

- (U) ($5.883) EMD pod development and procurement.

- (U) ($.470) Continue build of F/A-18 SCS software. Integration and test of the SHARP subsystems.

- (U) ($6.103) Complete coding for RMS to support integration of the EMD phase. Continue BIT software development and testing, and begin integration to the F/A-18E/F SCS.

- (U) ($5.477) Continue integration and test of the SHARP EDM pod. Continue performing initial E3 testing, Carrier Suitability testing, and Initial Operation Testing to support Low Rate Initial Production.

- (U)($.665) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.

R-1 SHOPPING LIST - Item No. 210

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **FEBRUARY 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0305207N Manned Reconnaissance Systems	E2673 F/A-18 Tactical Reconnaissance

3. FY 2003 PLANS:

- (U) ($.200) Continue program management to coordinate development activities during the EMD Phase of the Program.

- (U) ($2.240) Complete BIT software development and testing, and integration to the F/A-18E/F SCS.

- (U) ($.431) Complete E3 testing, Carrier Suitability testing, and Initial Operation Testing to support Low Rate Initial Production.

(U) B. PROGRAM CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	43.826	22.182	
(U) Adjustments from the FY 2002 President's Budget:	-2.482	4.998	
(U) FY 2003 President's Budget:	41.344	27.18	2.871

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2001 decrease of $ 2.482 million reflects a reprioritization of requirements within the Navy. The FY 2002 increase of $ 4.998 million reflects a Congressional add of $6 million, decrease of $.189 million for an undistributed congressional reduction and a decrease of $.813 million reprioritization of requirements within the Navy.

(U) Schedule: Not Applicable.

(U) Technical: Not Applicable.

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete
F/A-18E/F Fighter (Hornet) APN-1/BLI 014500 (Ancillary Equipment)	0	20.016	54.909	66.733	66.096	0	0	207.754

(U) C. RELATED RDT&E

(U) PE0305206N (Airborne Reconnaissance Advance Development)
(U) PE0204236N (F/A-18 Squadrons)
(U) PE0305208N (JSIPS)

R-1 SHOPPING LIST - Item No. 210

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **FEBRUARY 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N / BA-7	0305207N Manned Reconnaissance Systems	E2673 F/A-18 Tactical Reconnaissance	

(U) D. ACQUISITION STRATEGY: The SHARP program consists of three separate procurements.

1. The pod will be procured with an order on a Cost Plus Fixed-Fee (CPFF)/IDIQ contract to Raytheon, Indy.
2. The sensor is being procured competitively with a Cost Plus Fixed Fee (CPFF) contract.
3. The digital recorder will be procured competitively with a FPI or CPFF contract.

(U) E. SCHEDULE PROFILE:

	FY 2001	FY 2002	FY 2003	TO COMPLETE
(U) Program Milestones		1Q/02 LRIP		2Q/04 - MS-III
(U) Engineering Milestones	4Q/01 Prototype Complete 4Q/01 CDR (EMD)			
			2Q/03 - TECHEVAL 4Q/03 - OPEVAL	
(U) T&E Milestones				
(U) Contract Milestones	2Q/01 Sensor Award			

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **FEBRUARY 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0305207N Manned Reconnaissance Systems			PROJECT NUMBER AND NAME E2673 F/A-18 Tactical Reconnaissance							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Prototype POD Development	SS/FP-LOE	Raytheon, Indianapolis, IN	14.373								14.373	14.373
Prototype Sensor (3 suppliers)	C/FFP	Various	2.507								2.507	2.507
Prototype RMS Cards	C/Plus	Space Dyn Lab, Logan , UT	3.500								3.500	3.500
Procure EMD Sensor	C/FFP	Recon Optical, Barrington, IL		9.723	02/01	8.118	11/01				17.841	17.841
ILS Facilities (Ship Shore)	WX	SPAWAR, San Diego, CA		0.800	07/01						0.800	
EMD POD Development & Procure-	SS/FP-LOE	Raytheon, Indianapolis, IN	16.303	17.532	11/00	5.883	11/01				39.718	39.718
ment												
Software Engineering Development	WR	NAWCWD, China Lake, CA	5.434	5.219	11/00	6.103	11/01	2.240	11/02	1.491	20.487	
Systems Engineering/RMS Dev.	WR	NRL, Washington, DC	8.509								8.509	
Product Development	WR	NAWCWD, China Lake, CA	5.982	2.379	11/00	0.470	11/01				8.831	
ILS Support	WR	NAWCWD, Lakehurst, NJ	0.992	1.202	11/00	0.280	11/01				2.474	
Misc. Product Development	WR	Various	1.286	0.190	11/00	0.184	11/01	0.200	11/02	0.200	2.060	
Misc. Hardware Proc./Upgrades	WR	NRL, Washington, DC	4.050								4.050	
Subtotal Product Development			62.936	37.045		21.038		2.440		1.691	125.150	

Remarks:

R-1 SHOPPING LIST - Item No. 210

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)

DATE: **FEBRUARY 2002**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-7**

PROGRAM ELEMENT: 0305207N Manned Reconnaissance Systems

PROJECT NUMBER AND NAME: E2673 F/A-18 Tactical Reconnaissance

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Product Test & Integration	Various	VARIOUS	8.177	3.765	Various	4.748	Various	0.240	11/02	0.000	16.930	
Operational Test & Evaluation	WR	OPTEVFOR		0.017	11/00	0.016	11/01				0.033	
Subtotal T&E			8.177	3.782		4.764		0.240		0.000	16.963	
Remarks:												
Contractor Support/Travel/Misc.	Various	NAVAIR, Patuxent River, MD	0.599	0.517	Various	0.713	Various	0.191	Various	0.191	2.211	
SBIR Assessment						0.665						
Subtotal Management			0.599	0.517		1.378		0.191		0.191	2.876	
Remarks:												
Total Cost			71.712	41.344		27.180		2.871		1.882	144.989	
Remarks:												

R-1 SHOPPING LIST - Item No. 210

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification								DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7**						R-1 ITEM NOMENCLATURE 0305208N Distributed Common Ground Systems (DCGS)					
COST ($ in Millions)	Prior Years Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost			**4.419**	**7.127**	**7.482**	**4.532**	**3.733**	**3.797**	**3.864**	**Continuing**	**Continuing**
A2174 CIGSS (JSIPS-N)			**4.419**	**4.352**	**4.482**	**4.532**	**3.733**	**3.797**	**3.864**	**Continuing**	**Continuing**
A9118 Prec Targeting Sys Modernization*			**0.000**	**2.775**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**2.775**	**2.775**
Non-Add: Cost of War: JSIPS-N					**3.000**						
Quantity of RDT&E Articles **Not applicable**											

* $2.800 million was added by Congress in FY 2002 for Precision Targeting System Modernization and Enhancements.

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Joint Service Imagery Processing System – Navy (JSIPS-N) is the Navy's portion of the Distributed Common Ground System (DCGS) which is a cooperative effort between the services, agencies, and DoD to provide systems capable of receiving, processing, exploiting, and disseminating data from airborne and national reconnaissance platforms. DCGS is further subdivided into systems which process, exploit, and disseminate Measurements Analysis and Signatures Intelligence (MASINT) data, Signals Intelligence (SIGINT) data, Multi-Intelligence Reconnaissance data, and Imagery data. Cooperative imagery processing systems are collectively identified under the general heading of Common Imagery Ground/ Surface Systems (CIGSS). JSIPS-N is the Navy CIGSS component.

JSIPS-N has the capability to receive, process, exploit, store and disseminate imagery, imagery-derived products and imagery intelligence (IMINT) reports based on multiple inputs from multiple sources. The primary mission of JSIPS-N is to assist strike planners, tactical aviators, and Marine Corps amphibious planners in the delivery of precision ordnance (including Tomahawk Cruise Missiles) on target.

JSIPS-N includes three major components, the Softcopy Exploitation Segment (SES) consisting of the Digital Imagery Workstation Suite Afloat (DIWSA) and the Precision Targeting Workstation (PTW), the National Input Segment (NIS), and the Tactical Input Segment (TIS). JSIPS-N is being installed onboard aircraft carriers (CV/CVN), amphibious assault ships (LHA/LHD), select fleet flagships (AGF/LCC) and shore sites.

Secondary missions of the system are to provide near-real-time imagery and support to fleet intelligence assets, Special Operations Forces, and to support primary exploitation and dissemination of tactical organic and theater IMINT products.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under Operational Systems Development because it encompasses engineering and manufacturing development for upgrade of existing operational systems.

Non-Add: Cost of War

$3.0 million added to JSIPS-N to accelerate development of JSIPS-N components of Navy C4I dissemination architectures.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0305208N Distributed Common Ground Systems (DCGS)					PROJECT NUMBER AND NAME A2174 CIGSS (JSIPS-N)					
COST ($ in Millions)	Prior Years Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
A2174 CIGSS (JSIPS-N)			**4.419**	**4.352**	**4.482**	**4.532**	**3.733**	**3.797**	**3.864**	**Continuing**	**Continuing**
Non-Add: Cost of War: JSIPS-N					**3.000**						
RDT&E Articles Qty											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Joint Service Imagery Processing System – Navy (JSIPS-N) is the Navy's portion of the Distributed Common Ground System (DCGS) which is a cooperative effort between the services, agencies, and DoD to provide systems capable of receiving, processing, exploiting, and disseminating data from airborne and national reconnaissance platforms. DCGS is further subdivided into systems which process, exploit, and disseminate Measurements Analysis and Signatures Intelligence (MASINT) data, Signals Intelligence (SIGINT) data, Multi-Intelligence Reconnaissance data, and Imagery data. Cooperative imagery processing systems are collectively identified under the general heading of Common Imagery Ground/ Surface Systems (CIGSS). JSIPS-N is the Navy CIGSS component.

JSIPS-N has the capability to receive, process, exploit, store and disseminate imagery, imagery-derived products and imagery intelligence (IMINT) reports based on multiple inputs from multiple sources. The primary mission of JSIPS-N is to assist strike planners, tactical aviators, and Marine Corps amphibious planners in the delivery of precision ordnance (including Tomahawk Cruise Missiles) on target.

JSIPS-N includes three major components, the Softcopy Exploitation Segment (SES) consisting of the Digital Imagery Workstation Suite Afloat (DIWSA) and the Precision Targeting Workstation (PTW), the National Input Segment (NIS), and the Tactical Input Segment (TIS). JSIPS-N is being installed onboard aircraft carriers (CV/CVN), amphibious assault ships (LHA/LHD), select fleet flagships (AGF/LCC) and shore sites.

Secondary missions of the system are to provide near-real-time imagery and support to fleet intelligence assets, Special Operations Forces, and to support primary exploitation and dissemination of tactical organic and theater IMINT products.

Non-Add: Cost of War
$3.0 million added to JSIPS-N to accelerate development of JSIPS-N components of Navy C4I dissemination architectures.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0305208N Distributed Common Ground Systems (DCGS)	A2174 CIGSS (JSIPS-N)

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2001 ACCOMPLISHMENTS:

(U) ($3.758) Continued JSIPS-N systems engineering including Precision Targeting Workstation (PTW), Precision Guided Munitions (PGMs), 'classified' communications architecture, JSIPS-N Concentrator Architecture (JCA), and Imagery Exploitation Software Segment (IESS).
(U) ($0.561) Continued Shared Reconnaissance Pod (SHARP)-Tactical Input Segment (TIS) systems engineering and integration including the incorporation of appropriate Navy Input Segment (NAVIS) functions.
(U) ($0.100) Continued Test and Evaluation (T&E) of ongoing system upgrades and modifications.

2. FY 2002 PLANS:

(U) ($3.689) Continue JSIPS-N systems engineering including PTW, PGM, 'classified' communications, JCA, and IESS.
(U) ($0.563) Continue SHARP-TIS systems engineering and integration including the incorporation of appropriate NAVIS functions.
(U) ($0.100) Continue T&E of ongoing system upgrades and modifications.

3. FY 2003 PLANS:

(U) ($3.843) Continue JSIPS-N systems engineering including PTW, PGM, 'classified' communications, JCA, and IESS.
(U) ($0.539) Continue SHARP-TIS systems engineering and integration including the incorporation of appropriate NAVIS functions.
(U) ($0.100) Continue T&E of ongoing system upgrades and modifications.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0305208N Distributed Common Ground Systems (DCGS)	A2174 CIGSS (JSIPS-N)

(U) B. PROGRAM CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	4.434	4.467	
(U) Adjustments from FY2002 President's Budget:	(0.015)	(0.115)	
(U) FY 2003 President's Budget Submission:	4.419	4.352	4.482

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2001 decrease of $0.015 million for undistributed Congressional reductions.
The FY 2002 decrease of $.115 million reflects $.039 million reduction for an undistributed Congressional reduction and a $.076 million reduction for Federally Funded Research and Development Centers.

(U) Schedule: Not Applicable.
(U) Technical: Not Applicable

OTHER PROGRAM FUNDING SUMMARY:

		FY02	FY03	FY04	FY05	FY06	FY07
OPN	Common Imagery Ground Surface Systems	57.3	52.4	50.5	34.4	59.5	61.0

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0305208N Distributed Common Ground Systems (DCGS)	PROJECT NUMBER AND NAME A2174 CIGSS (JSIPS-N)

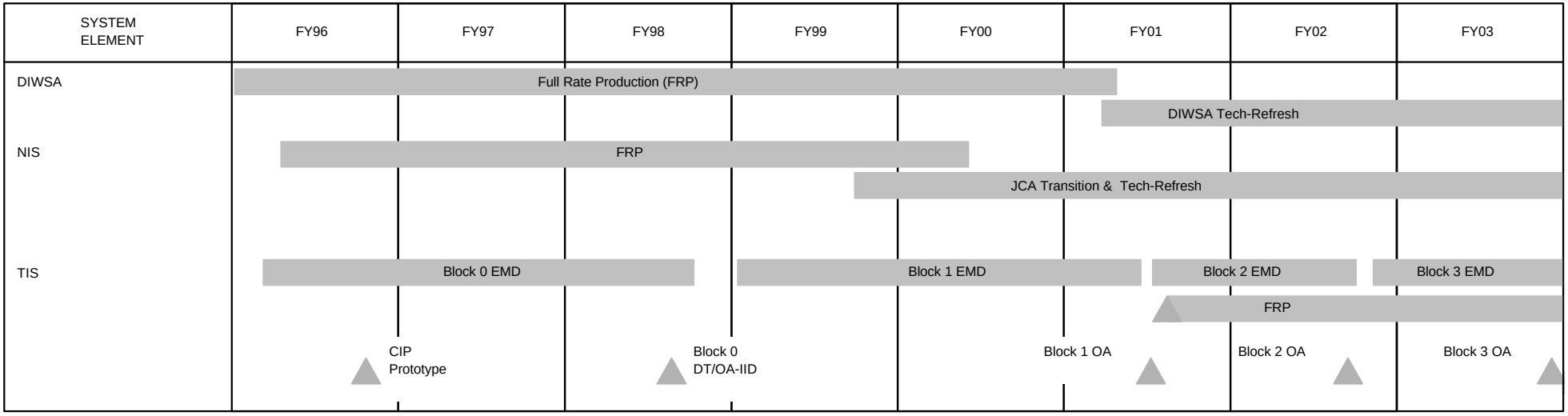
(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete	Total Cost
OPN, BLI 291400 Common Imagery Ground/Surface System (CIGSS)	45.990	57.627	52.432	50.535	34.429	59.474	61.042	Continuing	Continuing

Related RDT&E,N: Not Applicable

(U) D. ACQUISITION STRATEGY: The production system consists of three elements, the Softcopy Exploitation System (SES) consisting of the Digital Imagery Workstation Suite Afloat (DIWSA) and the Precision Targeting Workstation (PTW), the National Input Segment (NIS) and Tactical Input Segment (TIS). The DIWSA is already in full rate co-production with other programs, most notably Tomahawk's mission planning systems. The NIS is also in full rate production and supplied as Government Furnished Equipment (GFE) by the National Imagery and Mapping Agency (NIMA SDD). The TIS is acquired from the Air Force Electronic Systems Center (ESC) at Hanscom AFB. The TIS includes a Common Imagery Processor (CIP) that is supplied as GFE to the integrating contractor. The system integrator for the Navy system is the Space and Naval Warfare Systems Command.

(U) E. SCHEDULE PROFILE:



CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0305208N Dist. Common Ground Systems (DCGS)			PROJECT NUMBER AND NAME A2174 CIGSS (JSIPS-N)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Systems Engineering	MIPR	NAWC WD-CL, CA	0.800	0.800	02/01	0.816	02/02	0.829	02/03	Continuing	Continuing	
Systems Engineering	MIPR	NRL, Wash DC	0.254	0.194	05/01						0.448	0.448
Systems Engineering	MIPR	Mitre, VA	1.500	1.000	03/01	1.000	03/02	1.009	03/03	Continuing	Continuing	
Systems Engineering	MIPR	NRO, Wash DC	3.491	1.158	03/01	1.263	03/02	1.389	03/03	Continuing	Continuing	
Systems Engineering	MIPR	OSO, Wash DC	1.750	0.800	05/01	0.800	05/02	0.806	05/03	Continuing	Continuing	
Systems Engineering	MIPR	Rome Labs, NY	1.080								1.080	1.080
Systems Engineering	MIPR	Hanscom ESC, NY	1.082	0.367	03/01	0.373	03/02	0.349	03/03	Continuing	Continuing	
Subtotal Product Development			9.957	4.319		4.252		4.382		Continuing	Continuing	

Remarks:

											#VALUE!	2.775
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	

Remarks: $2.775M is a Congressional add for DIWS acceleration executed under Project A9118

R-1 SHOPPING LIST - Item No. 211

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0305208N Dist. Common Ground Systems (DCGS)				PROJECT NUMBER AND NAME A2174 CIGSS (JSIPS-N)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX	COMOPTEVFOR, VA	0.175	0.100	06/01	0.100	06/02	0.100	06/03	Continuing	Continuing	
Subtotal T&E			0.175	0.100		0.100		0.100		Continuing	Continuing	
Remarks:												
Subtotal Management												
Remarks:												
Total Cost			10.132	4.419		4.352		4.482		Continuing	Continuing	
Remarks:												

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2002			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0305208N Distributed Common Ground Systems (DCGS)					PROJECT NUMBER AND NAME A9118 Precision Targeting System Modernization					
COST ($ in Millions)	Prior Years Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
A9118 Precision Targeting System Modernization	**0.000**		**0.000**	**2.775**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**2.775**
RDT&E Articles Qty											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) The Precision Targeting Workstation (PTW) and Digital Imagery Workstation Suite Afloat (DIWSA) make up the Softcopy Exploitation Segment (SES) of JSIPS-N which are used for precision mensuration and exploitation. SES is one of the three major components of JSIPS-N. The other two are the National Input Segment (NIS), used for receipt of national imagery and dissemination of secondary imagery products, and the Tactical input Segment (TIS) used with the Common Imagery Processor (CIP) for receipt and processing of tactical/theater imagery.

(U) DIWSA is also utilized by the Afloat Planning Systems (APS), the afloat version of the Tomahawk Theater Mission Planning Center (TMPC). The purpose of APS DIWS is to generate Tomahawk Land Attack Mission (TLAM) specific formatted terminal area navigation products from imagery and support data. DIWS is also used afloat for Precision Guided Munition (PGM) coordinates in support of JSIPS-N.

(U) The FY02 funding of $2.775M is a Congressional add to be utilized to accelerate the transition of DIWSA from the current TAC-4 type systems to PC-based configuration. DIWS functionality will be migrated to PTW in order to merge the capabilities to a common hardware baseline. The PC migration effort started in FY01 under the Tomahawk program with a fielding of June 2005. This funding will accelerate the Fleet release to June 2003.

R-1 SHOPPING LIST - Item No. 211

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0305208N Distributed Common Ground Systems (DCGS)	A9118 Precision Targeting System Modernization

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2001 ACCOMPLISHMENTS: Not applicable.

2. FY 2002 PLANS:
(U) ($2.775) Transistion DIWS to PC-Based configuration.

3. FY 2003 PLANS: Not applicable.

R-1 SHOPPING LIST - Item No. 211

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0305208N Distributed Common Ground Systems (DCGS)	A9118 Precision Targeting System Modernization

(U) B. PROGRAM CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	0.000	0.000	
(U) Adjustments from FY2002 President's Budget:	0.000	2.775	
(U) FY 2003 President's Budget Submission:	0.000	2.775	0.000

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2002 increase of $2.775 million reflects a Congressional add of $2.800 million for Precision Targeting System Modernization and Enhancements and a $.025 million decrease for an undistributed Congressional reduction.

(U) Schedule: Not Applicable.

(U) Technical: Not Applicable.

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
OPN, BLI 291400, Project 02000 Common Imagery Ground/Surface System (CIGSS)	5.840	5.952	1.516	1.548	1.580	4.030	6.576

Related RDT&E,N: Not Applicable

(U) D. ACQUISITION STRATEGY: The acquisition strategy for this project is to support the related TMPC acquisition strategy for the completion the PC- based migration effort.

(U) E. SCHEDULE PROFILE:

	FY 2002	FY 2003	FY 2004	FY 2006	FY 2007
(U) Program Milestones		PTW 4.1.1	Fleet Release		
(U) Engineering Milistones					
(U) T&E Milestones					
(U) Contract Milestones	PTW/DIWS contract award				

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0305208N Dist. Common Ground Systems (DCGS)			PROJECT NUMBER AND NAME A9118 Precision Targeting System Modernization							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	C/CPFF	BAE Systems, San Diego, CA				2.775	03/02			0.000	2.775	2.775
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Product Development			0.000	0.000		2.775		0.000		Continuing	Continuing	

Remarks:

												2.775
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	

Remarks: $2.775M is a Congressional add for DIWS acceleration executed under Project A9118

R-1 SHOPPING LIST - Item No. 211

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0305208N Dist. Common Ground Systems (DCGS)				PROJECT NUMBER AND NAME A9118 Precision Targeting System Modernization						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
											0.000	
Subtotal T&E			0.000	0.000		0.000		0.000			0.000	
Remarks:												
											0.000	
Subtotal Management			0.000	0.000		0.000		0.000			0.000	
Remarks:												
Total Cost			0.000	0.000		2.775		0.000			2.775	
Remarks:												

R-1 SHOPPING LIST - Item No. 211

Exhibit R-2, FY 2003 PB RDT&E,N Budget Item Justification DATE: February 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305927N
PROGRAM ELEMENT TITLE: Navy Space Surveillance

(U) COST: (Dollars in thousands)

PROJECT NUMBER & TITLE		FY 2001 ACTUAL	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
X0125	Naval Space Surveillance	1,411	3,208	9,548	2,285	2,278	752	775	CONT.	CONT.
X9119	SPAWAR Covert Commun/Info Transfer	-	1,685	-	-	-	-	-		
	TOTAL	1,411	4,893	9,548	2,285	2,278	752	775	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Naval Space Surveillance Fence is an integral component of the U. S. Space Command Space Surveillance Network. This system provides continuous surveillance and unalerted detection of space objects crossing the continental United States. The Fence is also the only space surveillance system that provides satellite vulnerability and space control data to the fleet. It is a multistatic continuous wave radar fence consisting of three transmitter sites, six receiver sites, and a computation/communication center. The Alternate Space Control role assigned by U.S. Commander in Chief Space (USCINCSPACE) requires that the Naval Space Command Mission System maintain functional equivalence with the USCINCSPACE Space Control Center and receive, process, and distribute data from 26 surveillance sites. The increase in funding FY01 and out supports this role and the research, design, and development of high-powered transmitters and other system component parts for the next generation Fence system. (X0125)

Congressional Plus-up for SPAWAR Covert Communication and Information Transfer (X9119)

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrading existing operational systems.

(U) PROGRAM CHANGE SUMMARY FOR TOTAL PE:

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305927N
PROGRAM ELEMENT TITLE: Navy Space Surveillance

PROJECT **X0125**
FY 2001: Section 8086: 0.7% Pro-Rata Reduction (-$10K), Government-Wide Rescission (-$3K), Navy Miscellaneous Adjustments(-$14K). FY 2002: Congressional reduction for excessive program growth (-$1,000K), Section 8123: Management Reform Initiative (-$29K).

PROJECT X9119
FY2002: Congressional Plus-up for SPAWAR Covert Communication and Information Transfer (+$1,700K). Section 8123: Management Reform Initiative (-$15K).

(U) CHANGE SUMMARY EXPLANATION:

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

Exhibit R-2, FY 2003 PB RDT&E,N PROJECT JUSTIFICATION DATE: February 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305927N PROJECT: X0125
PROGRAM ELEMENT TITLE: Naval Space Surveillance PROJECT TITLE: Naval Space Surveillance

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 2001 ACTUAL	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
X0125 Naval Space Surveillance	1,411	3,208	9,548	2,285	2,278	752	775	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project supports the Naval Space Surveillance Fence, an integral component of the U. S. Space Command Space Surveillance Network. This system provides continuous surveillance and unalerted detection of space objects crossing the Continental United States. The fence is also the only space surveillance system which provides satellite vulnerability and space control data to the fleet. It is a multistatic continuous wave radar fence consisting of three transmitter sites, six receiver sites, and a computation/communication center. The Alternate Space Control role assigned by U.S. Commander in Chief Space (USCINCSPACE), requires that the Naval Space Command Mission System maintain functional equivalence with the USCINCSPACE Space Control Center and receive, process, and distribute data from 26 surveillance sites.

B. (U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2001 ACCOMPLISHMENTS:
   - (U) ($87) Studied integrated communications for remote operations.
   - (U) ($1,324) Evaluated requirements for S-band operations to draft performance specification. Performed studies to reduce technical risks of the S-Band sensor system development and numerically intensive processing.

2. (U) FY 2002 PLAN:
   - (U) ($500) Conduct Environmental, Safety, and Hazmat studies in support of frequency selection and allocation.
   - (U) ($2,708) Develop preliminary architecture and design for RF sensors, communications, and processing.

3. (U) FY 2003 PLAN:
   - (U) ($3,655) Complete development of detailed architecture and design for RF sensors, communications, and processing.
     (U) ($5,893) Develop an RF sensor prototype to provide a system demonstration in FY2004 prior to Critical Design Review (CDR)

Exhibit R-2, FY 2003 PB RDT&E,N PROJECT JUSTIFICATION DATE: February 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305927N PROJECT: X0125
PROGRAM ELEMENT TITLE: Naval Space Surveillance PROJECT TITLE: Naval Space Surveillance

(U) Related RDT&E: Not Applicable

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 2001 ACTUAL	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) OPN line #2901	2,689	3,863	2,062	25,350	28,766	29,340	30,006	cont.	cont.
(U) O&MN PE# 0305927			1,605	1,750	1,574	1,575	2,576	cont.	cont.

D. (U) SCHEDULE PROFILE: Not applicable.

(U) SCHEDULE PROFILE: Not applicable.

	FY 2001	FY 2002	FY 2003	To Complete
Program Milestones	MS B Decision			

Exhibit R-2, FY 2003 PB RDT&E,N PROJECT JUSTIFICATION DATE: February 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305927N PROJECT: X0125
PROGRAM ELEMENT TITLE: Naval Space Surveillance PROJECT TITLE: Naval Space Surveillance

Engineering Milestones	Phase II - Sensor Risk Reduction & System Design	Phase III - System Preliminary Design	Phase III - System Detail Design	Production and Installation
T&E Milestones				
Contract Milestones	Exercise Phase II Option	Award Phase III Contract	Exercise Phase III Option	

Note: In FY04 there will be a formal Milestone C Decision prior to production.

Exhibit R-3, FY 2003 PB RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: February 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305927N PROJECT: X0125
PROGRAM ELEMENT TITLE: Naval Space Surveillance PROJECT TITLE: Naval Space Surveillance

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 2001	FY 2002	FY 2003
a. Project Management	0	400	800
b. Product Development	1,411	2,808	8,748
Total	1,411	3,208	9,548

Exhibit R-2a, FY 2003 PB RDT&E,N PROJECT JUSTIFICATION DATE: February 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305927N PROGRAM ELEMENT TITLE: Naval Space Surveillance PROJECT: X9119 PROJECT TITLE: SPAWAR Covert Comm & Info Transfer

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 2001 ACTUAL	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
X9119 SPAWAR Covert Communication and Information Transfer		1,685							

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:
SPAWAR Covert Communication and Information Transfer

B. (U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2001 ACCOMPLISHMENTS: N/A.

2. (U) FY 2002 PLAN:
   - (U) ($1,685) SPAWAR Covert Communication and Information Transfer.

3. (U) FY 2003 PLAN: N/A.

(U) RELATED RDT&E: Not applicable.

Exhibit R-3, FY 2003 PB RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: February 2002

BUDGET ACTIVITY: 7
PROGRAM ELEMENT: 0305927N
PROGRAM ELEMENT TITLE: Naval Space Surveillance
PROJECT: X9119
PROJECT TITLE: SPAWAR Covert Comm & Info Transfer

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 2001	FY 2002	FY 2003
a. SPAWAR Covert Communication And Information Transfer	0	1,685	0
Total	0	1,685	0

FY 2003 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: February 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0308601N
PROGRAM ELEMENT TITLE: Naval Modeling and Simulation

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 2001 ACTUAL	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
R2222 Naval Modeling & Simulation	13,377	7,709	7,783	9,256	10,132	10,658	11,114	CONT.	CONT.
R2810 Enhanced M&S Initiatives		4,857							
Total	13,377	12,566	7,783	9,256	10,132	10,658	11,114	CONT.	CONT.

- A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Funds the efforts of Navy Modeling and Simulation (M&S) Management Office and the Department of the Navy Technical Support Group (TSG). Supports technical and management initiatives directed by Congress, Department of Defense (DoD) and Secretary of the Navy (SECNAV) with the aim of bringing organization and focus to the development and use of Modeling and Simulations (M&S) tools throughout Navy and DoD. It provides a central agency for the formulation and implementation of policy and guidance in M&S; represents Navy interests in Joint/other Agency. Funds efforts to define and coordinate execution of a Navy M&S program to evolve an interoperable and reusable core M&S capability consistent with the M&S technical framework prescribed by DoD. Efforts are organized around four product areas: (1) Engineering Studies and Analysis, to define the feasibility and applicability of proposed standards to Navy and to investigate service unique requirements for standards or guidance; (2) Products and Services, to develop the policy, standards, and common tools and services necessary to guide more efficient development and use of M&S across Navy; this includes development and management of the Navy Modeling and Simulation Information System (NMSIS), Navy counterpart to the DOD M&S Resource Repository, to provide a central M&S information resource to reduce stove-piped development, promote tool reuse and support informed M&S investment decisions; (3) M&S Quality Assurance Program, to establish and manage a disciplined process of model verification, validation and accreditation (VV&A) required by current directives; (4) Simulation Experiments, to test distributive simulation technology in fleet exercises, experiments, and pilot efforts which demonstrate and examine the value and limitations of proposed standards (such as High Level Architecture (HLA) and Simulation Based Acquisition (SBA)) to mission and program requirements.

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0308601N
PROGRAM ELEMENT TITLE: Naval Modeling and Simulation

(U) Congressional Plus up: Enhanced M&S Initiatives: No specific language is given. Work will be performed in support of Modeling & Simulation technology.

(U) PROGRAM CHANGE FOR TOTAL PE:

	FY 2001	FY 2002	FY 2003
FY 2002 President's Budget	13,976	7,828	
Adjustments from FY 2002 PRESBUDG:			
SBIR Adjustments	-239		
Execution Adjustments	-360		
Undistributed Reductions (FFRDC)		-50	
Congressional Plus up		4,900	
Section 8123 Management Improvement Initiative		-112	
FY 2003 PRESBUDG Submission	13,377	12,566	7,783

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

FY 2003 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: February 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0308601N
PROGRAM ELEMENT TITLE: Naval Modeling and Simulation

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 2001 ACTUAL	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
R2222 Naval Modeling & Simulation	13,377	7,709	7,783	9,256	10,132	10,658	11,114	CONT.	CONT.

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Program funds overarching policy, coordination and technical support for Navy Modeling and Simulation (M&S). The program specifically provided critical coordination of Navy M&S efforts, integrated individual programs into a coherent whole, promoted reuse of resources, and aligned Navy efforts with Joint programs. Developed and maintained a comprehensive repository of models, simulations and authoritative data to support broad-based Navyrequirements. Promoted reusability through the Quality Assurance process for models, simulations and data enhanced Interoperability by coordinating and reviewing Navy's transition to DoD mandated High Level Architecture for distributed simulations. Participated in fleet exercise experiments, distributive simulations and demonstrations (such as Fleet Battle Experiments-I, Virtual at Sea Training (VAST), and Virtual Missile Range (VMR)).

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2001 ACCOMPLISHMENTS:

- (U) ($1,863) Engineering Studies and Analysis: Continued to develop and implement the Navy strategy for the transition of Navy M&S to the Office of Secretary of Defense (OSD)-mandated M&S interoperability standard, High Level Architecture (HLA). Led Navy HLA implementation planning, reported Navy compliance to DoD, and participated in the DoD HLA transition working group. Briefed Navy flags, intra and inter service forums on the issues and technical implications of Navy M&S compliance with HLA. Continued to develop attributes for designing modeling standards of communication networks and information systems. This was done in collaboration with the Joint Staff (JS) Networkcentric Warfare System (NETWARS) standards working group. Performed analysis of current operational communications infrastructure and derived a method to extract, process and archive information to support operational analysis capabilities through modeling and simulation. Initiated studies to identify building blocks functions required within Defense Information Infrastructure (DII) Common Operating Environment(COE) based Command, Control Communications, Computer, and Intelligence (C4I) systems to support simulation development. This will provide the capability to link Global Command and Control Systems (GCCS) operational functions with simulations. Continued to develop and implement a roadmap for migrating existing standalone training modeling capability into a more integrated, interoperable core suite of capability tailored to the Navy training requirements. Continued establishment of a Modeling and Simulation degree program at the Naval Postgraduate School, Modeling, Virtual Environments and Simulation (MOVES) curriculum.

- (U) ($7,776) Products and Services: Developed and provided an operational implementation of the web-based Navy Modeling and Simulation Information System (NMSIS), the Naval component of the DoD M&S resource repository (part of the DoD M&S Framework). Updated and provided user assistance and support on the Naval M&S Catalog. Supported planning and technical coordination of efforts across Navy M&S Functional Areas, other services, OSD, Joint Staff, and other agencies to develop policies and procedures for M&S standardization. Coordinated and chaired Navy’s M&S Working Group and Navy Flag M&S Steering Group; participated in the Defense M&S Office’s M&S working group and the DoD M&S Executive Council, including separate forums for training, assessments & acquisition; and coordination of technical reviews of joint programs and initiatives Joint Simulation System (JSIMS), Joint Warfare Systems (JWARS), Joint Modeling and Simulation System (JMASS) and NETWARS). Participated in select OSD and industry sponsored symposia. Continued implementation of a Navy M&S Standards Steering Group and a series of Technical Interchange Meetings for the M&S community.

- (U) ($730) M&S Quality Assurance Program: Continued to implement and manage the M&S Quality Assurance development of the Verification, Validation, and Accreditation (VV&A) process and guidelines for modeling, simulation, and data. Provided technical review on M&S VV&A plans and reports and provided subject matter expertise and advice on how to meet Navy policy requirements within existing fiscal and programmatic constraints. Develop and implemented an initial version of a web-based VV&A Handbook aimed at supporting program managers across the Navy. Establish and implement a VV&A training curriculum for developers and accreditors. Provide annual VV&A assessment to the Chief of Naval Operations (CNO).

- (U) ($3,008) Simulation Experiments: Provided Navy share of Services' contribution to maintenance of the simulation protocol needed to use Joint Training Confederation simulations in Joint Task Force Exercises. Ensured simulation of Naval forces and supported Navy participation in Joint exercises; supported Ulchi Focus Lens, Synthetic Theater of War, and United Endeavor. Identified initial suite of existing M&S tools to offer near term relevance and application to the goals of the Maritime Battle Center (MBC) and the ongoing evaluation of systems and technologies in reoccurring Fleet Battle Experiments (FBE). Continued development of a Virtual Missile Range to support Fleet training needs. Continued development of the Maritime Virtual Environmental Data Specification (MARVEDS) to provide standards that represent the natural environment. This type of standard for simulation environments is critical to enabling Simulation Based Acquisition (SBA). Participated in OSD effort to develop a definition, functional description, and implementation plan for simulation-based acquisition. Provided core support in the development of a Probability of Raid Annihilation (PRA) Federation for use in surface ship combat system test and evaluation.

(U) FY 2002 PLAN:

- (U) ($1,313) Engineering Studies and Analysis: Conduct engineering studies and analysis aimed at determining the feasibility and applicability of proposed standards or technical approaches to Navy and at investigating service unique requirements for standards or guidance. Individual study thrusts will focus on developing or evaluating approaches to optimize training, assessments and acquisition functional/mission objectives through more efficient development and use of M&S. Develop methodologies and standards that will result in model and data reusability and interoperability through the formulation of a technical framework. These standards will support the full range of

architecture and engineering design and analysis requirements across Navy. Provide a M&S degree program through the Naval Postgraduate School, MOVES curriculum.

- (U) ($2,561) Products and Services: Continue development of common services, tools, and databases. Develop and enhance the NMSIS, through an evolutionary process, integrating standards, standard models, standard data and connectivity to support all Naval assessments, training, acquisition and operational communities. Manage and maintain the NMSIS, as a central M&S information resource to reduce stove-piped development, promote standardization and reuse and support informed M&S investment decision making across Navy. Provide the necessary planning and coordination of M&S efforts across the Navy M&S Functional Areas, other Services, OSD, Joint Staff, and other agencies to develop policies and procedures necessary for M&S standardization within the Navy. Provide annual updates to the Naval M&S Catalog, Master Plan, and Investment Strategy.

- (U) ($790) M&S Quality Assurance Program: Continue to implement and manage the M&S Quality Assurance development of the VV&A process and guidelines for modeling, simulation, and data. Continue to review both new and legacy M&S VV&A plans and reports. Develop and maintain the Naval M&S verification, validation and accreditation (VV&A) repository. Establish and implement a VV&A training curriculum for developers and accreditors. Provide annual verification validation and Accreditation VV&A assessment to the CNO.

- (U) ($3,045) Simulation Experiments: Support Fleet exercises and experiments through the application of distributed simulation to a wide variety of operational, research and development, training, test and evaluation exercises. Develop and integrate appropriate models and simulations into the FBE. Develop a series of simulation projects to test and evolve the standards for models, interfaces, data, and tools necessary to enable the seamless access and use of operationally relevant M&S to support the range of Navy training, warfare assessments and acquisition requirements.

(U) FY 2003 PLAN:

- (U) ($1,313) Engineering Studies and Analysis: Conduct engineering studies and analysis aimed at determining the feasibility and applicability of proposed standards or technical approaches to Navy and at investigating service unique requirements for standards or guidance. Individual study thrusts will focus on developing or evaluating approaches to optimize training, assessments and acquisition functional/mission objectives through more efficient development and use of M&S. Develop methodologies and standards that will result in model and data reusability and interoperability through the formulation of a technical framework. These standards will support the full range of architecture and engineering design and analysis requirements across Navy. Provide a M&S degree program through the Naval Postgraduate School, MOVES curriculum.

- (U) ($2,666) Products and Services: Continue development of common services, tools, and databases. Develop and enhance the NMSIS, through an evolutionary process, integrating standards, standard models, standard data and connectivity to support all Naval assessments, training, acquisition and operational communities. Manage and maintain the NMSIS, as a central M&S information resource to reduce stove-piped development, promote standardization and reuse and support informed M&S investment decision making across Navy. Provide the necessary planning and coordination of M&S efforts across the Navy M&S Functional Areas, other Services, OSD, Joint Staff, and other agencies to develop policies and procedures necessary for M&S standardization within the Navy. Provide annual updates to the Naval M&S Catalog, Master Plan, and Investment Strategy.

- (U) ($790) M&S Quality Assurance Program: Continue to implement and manage the M&S Quality Assurance development of the VV&A process and guidelines for modeling, simulation, and data. Continue to review both new and legacy M&S VV&A plans and reports. Develop and maintain the Naval M&S VV&A repository. Establish and implement a VV&A training curriculum for developers and accreditors. Provide annual VV&A assessment to the CNO.

- (U) ($3,014) Simulation Experiments: Support Fleet exercises and experiments through the application of distributed simulation to a wide variety of operational, research and development, training, test and evaluation exercises. Develop and integrate appropriate models and simulations into the FBE. Develop a series of simulation projects to test and evolve the standards for models, interfaces, data, and tools necessary to enable the seamless access and use of operationally relevant M&S to support the range of Navy training, warfare assessments and acquisition requirements.

FY 2003 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: February 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0308601N PROGRAM ELEMENT TITLE: Naval Modeling and Simulation PROJECT NUMBER: R2222 PROJECT TITLE: Naval Modeling and Simulation

B. (U) PROGRAM CHANGE SUMMARY: See Total Program Change Summary for PE.

C. (U) OTHER PROGRAM FUNDING SUMMARY: Not applicable.

(U) RELATED RDT&E: Not applicable.

D. (U) SCHEDULE PROFILE: Not applicable.

FY 2003 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: February 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0308601N PROGRAM ELEMENT TITLE: Naval Modeling and Simulation PROJECT NUMBER: R2222 PROJECT TITLE: Naval Modeling and Simulation

*Exhibit R-3 Cost Analysis (page 1)												DATE: February 2002
APPROPRIATION/BUDGET ACTIVITY: 7			PROGRAM ELEMENT: 0308601N									PROJECT NAME AND NUMBER: Modeling & Simulation R2222
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY-01 Cost	FY-01 Award Date	FY-02 Cost	FY-02 Award Date	FY-03 Cost	FY-03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
			.									
Navy M&S Info Sys Development	Various	Various	1721	3888	VAR	1281	TBD	1333	TBD	Cont.	Cont.	Cont.
Quality Assurance	Various	Various	1235	730	VAR	790	TBD	790	TBD	Cont.	Cont.	Cont.
Subtotal Product Development			2956	4618		2071		2123		Cont.	Cont.	Cont.
M&S Services	Various	Various	1873	3888	TBD	1280	TBD	1333	TBD	Cont.	Cont.	Cont.
Subtotal Support			1873	3888		1280		1333	TBD	Cont.	Cont.	Cont.

FY 2003 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: February 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0308601N PROGRAM ELEMENT TITLE: Naval Modeling and Simulation PROJECT NUMBER: R2222 PROJECT TITLE: Naval Modeling and Simulation

Exhibit R-3 Cost Analysis (page 2)													Date: February 2002
APPROPRIATION/BUDGET ACTIVITY: 7			PROGRAM ELEMENT: 0308601N										PROJECT NAME AND NUMBER: Modeling & Simulation, R2222
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY-01 Award Date	FY-02 Cost	FY-02 Award Date	FY-03 Cost	FY-03 Award Date	Cost To Complete	Total Cost	Target Value of Contract	
Simulation Experiments	Various	Various	2683	3008	TBD	3045	TBD	3014	TBD	Cont.	Cont.	Cont.	
Subtotal T&E			2683	3008		3045		3014		Cont.	Cont.	Cont.	
Engineering Studies/Analyses	Various	Various	3408	1863	TBD	1313	TBD	1313	TBD	Cont.	Cont.	Cont.	
Program Management										Cont.	Cont.	Cont.	
Subtotal Management			3408	1863		1313		1313		Cont.	Cont.	Cont.	
Total Cost			10920	13377		7709		7783		Cont.	Cont.	Cont.	

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification									DATE: **February 2002**		
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7**						R-1 ITEM NOMENCLATURE 0702207N Depot Maintenance (Non-IF)					
COST ($ in Millions)	Prior Year Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost	**92.296**		**37.337**	**13.448**	**7.119**	**2.896**					**153.096**
E3030 F-18 SLAP			**10.000**	**5.919**	**1.989**						**17.908**
H2451 P-3 SLAP	**49.304**		**17.830**	**6.794**	**5.130**	**2.896**					**81.954**
H2452 S-3 SLAP	**34.052**		**5.082**								**39.134**
W2454 AN/ARC-210-RT-1794(C)	**7.241**		**0.527**	**0.735**							**8.503**
W2737 Platform Follow-on Analysis	**1.699**		**3.898**								**5.597**
Quantity of RDT&E Articles **Not Applicable**											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The F/A-18 Service Life Assessment Program (SLAP) will assess the structural condition of the F/A-18 fleet in order to determine what structural modifications are necessary to extend the aircraft designed service life and allow it to achieve inventory requirements. The Resource Sponsor (N78) has indicated an urgent need to assess the structural condition of the F/A 18 fleet to determine whether the structural condition supports OPNAV Tactical Aircraft inventory requirements through fiscal year (FY) 2020. It is known that F/A-18 aircraft built prior to Lot 18 are limited to 78% of their design fatigue life due to structural cracking in the section of the fuselage known as the "Center Barrel." The Center Barrel Replacement Plus (CBR+) program eliminates structural life limitations caused by cracking in the Center Barrel. The airframe structure also has the following structural limitations, both of which must be addressed to extend the designed service life of the aircraft. The F/A-18 A/B/C/D aircraft structure will also be assessed to determine the life limit on landings for all four models of types for aircraft lot 8 aircraft and above aircraft. Currently the aircraft structure is limited to 8300 landings. The goal of the SLAP program will be to identify critical structure to allow total landings to be increased to 14,500. This increase in total landings would allow the F/A-18 A/B/C/D to meet OPNAV Tactical Aircraft inventory requirements through fiscal year (FY) 2020.The Service Life Assessment Program (SLAP) on the P-3 to include all P-3 derivatives (H2451) and S-3B (H2452) began in FY 1999. These efforts are required to be conducted for these airframes to ascertain what actions must be taken to safely operate each system until the targeted end of service life. The AN/ARC-210-RT-1794C (W2454) will provide for the development of radio software modifications required for upgrades to the evolving standards. Under W2737 Platform Follow-on Analysis, the Multi-mission Maritime Aircraft (MMA) program provides the replacement system(s) for the aging P-3/EP-3 aircraft. The MMA program received Milestone 0 approval to proceed into Concept Exploration in March 2000.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for the upgrade of existing, operational systems.

R-1 SHOPPING LIST - Item No. 214

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification									DATE: **February 2002**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0702207N DEPOT MAINTENANCE					PROJECT NUMBER AND NAME E3030 F/A-18 Service Life Assessment Program (SLAP)					
COST ($ in Millions)	Prior Years Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost			**10.000**	**5.919**	**1.989**						**17.908**
RDT&E Articles Qty **Not applicable**											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

F/A-18 Service Life Assessment Program (SLAP): The Service Life Assessment Program (SLAP) is a FY 2001 new start program which will assess the structural condition of the F/A-18 fleet in order to determine what structural modifications are necessary to extend the aircraft designed service life and allow it to achieve inventory requirements. The Resource Sponsor (N880) has indicated an urgent need to assess the structural condition of the F/A-18 fleet to determine whether the structural condition supports OPNAV Tactical Aircraft inventory requirements through fiscal year (FY) 2020. It is known that F/A-18 aircraft built prior to Lot 18 are limited to 78% of their design fatigue life due to structural cracking in the section of the fuselage known as the "Center Barrel." The Center Barrel Replacement Plus (CBR+) program eliminates structural life limitations caused by cracking in the Center Barrel. The airframe structure also has structural limitations which must be addressed to extend the designed service life of the aircraft. The F/A-18 A/B/C/D aircraft structure will be assessed to determine the life limit on landings for all four models or types of aircraft in lot 8 aircraft and above. Currently the aircraft structure is limited to 8300 landings. The goal of the SLAP program will be to achieve structual capability to allow total landings to be increased to 14,500. This increase in total landings would allow the F/A-18 A/B/C/D to meet OPNAV Tactical Aircraft inventory requirements through fiscal year (FY) 2020.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2001 ACCOMPLISHMENTS:

- (U) ($10.000) Conducted analysis to determine Cat/Trap interim extension to 2,200. Began analysis to extend Cat/Traps to 2700 and Landings to 14,500.

2. FY 2002 PLANS

- (U) ($4.678) Continue analysis to determine Cat/Trap extension to 2,700 and Landings to 14,500.

- (U) ($1.062) Provided technical support for the Cat/Trap analysis.

- (U) ($.179) Portion of extramural program reserved for Small Business Innovative Research assessment in accordance with 15 USC 638.

3. FY 2003 PLANS

- (U) ($1.271) Complete Cat/Trap analysis.

- (U) ($.718) Complete technical support for the Cat/Trap analysis.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0702207N DEPOT MAINTENANCE	PROJECT NUMBER AND NAME E3030 F/A-18 Service Life Assessment Program (SLAP)

(U) B. PROGRAM CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	10.000	5.972	
(U) Adjustments from the President's Budget:	0.000	-0.053	
(U) FY 2003 OSD/OMD Budget Submit:	10.000	5.919	1.989

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2002 decrease of $.053 million is due to an undistributed congressional reduction.

(U) Schedule: Not Applicable.

(U) Technical: Not Applicable.

R-1 SHOPPING LIST - Item No. 214

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0702207N DEPOT MAINTENANCE	PROJECT NUMBER AND NAME E3030 F/A-18 Service Life Assessment Program (SLAP)

(U) C. OTHER PROGRAM FUNDING SUMMARY:

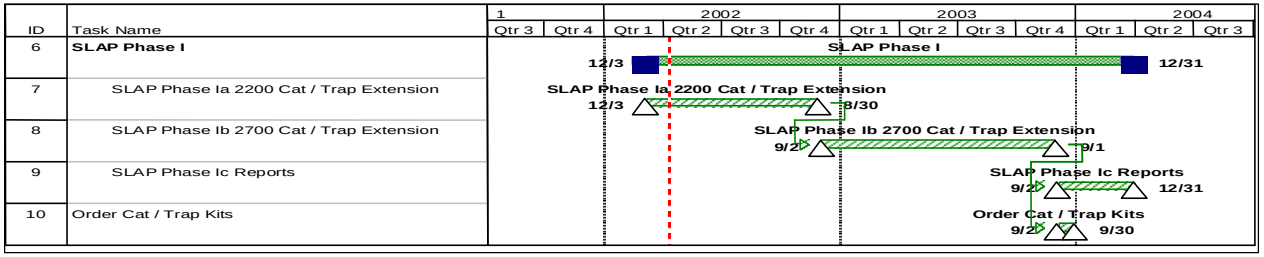
Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete
APN-5 P.E 0204136N F/A-18 Squadrons OSIP (11-99) Service Life Management Program	5.247	16.584	57.046	64.052	84.317	93.826	99.207	536.12
Related RDT&E								
RDTEN PE 0605500N Multi-mission Maritime Aircraft		53.329	74.531	218.861	198.566	437.913	405.369	1012.931

(U) ACQUISITION STRATEGY: The SLAP program employs sole source contracts to BOEING, the aircraft prime manufacturer, and concurrent organic efforts being conducted by both NADEP, North Island and NAWCAD, Patuxent River. SLAP consists of structural analy

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0702207N DEPOT MAINTENANCE	PROJECT NUMBER AND NAME E3030 F/A-18 Service Life Assessment Program (SLAP)

(U) E. SCHEDULE PROFILE:



R-1 SHOPPING LIST - Item No. 214

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)						DATE: **February 2002**						
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT			PROJECT NUMBER AND NAME E3030 F/A-18 Service Life Assessment Program (SLAP)						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
SLAP Contract	SS/FFP	BOEING, St Louis		10.000	11/01	1.168	12/01	0.359	12/02		11.527	11.527
SLAP Development	WX	NAWCAD Pax River, MD				0.563	12/01	0.132	11/02		0.695	
SLAP Development	WX	NADEP North Island, CA				2.947	12/01	0.780	11/02		3.727	
Subtotal Product Development				10.000		4.678		1.271			15.949	

Remarks:

Subtotal Support												

Remarks:

R-1 SHOPPING LIST - Item No. 214

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)

DATE: **February 2002**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-7**

PROGRAM ELEMENT:

PROJECT NUMBER AND NAME: E3030 F/A-18 Service Life Assessment Program (SLAP)

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Subtotal T&E												
Remarks:												
SLAP Contractor Support	WX	Various				1.017	12/01	0.698	11/02		1.715	
Travel	WX	NAVAIR Pax River, MD				0.045	12/01	0.020	10/02		0.065	
SBIR Assessment						0.179					0.179	
Subtotal Management						1.241		0.718			1.959	
Remarks:												
Total Cost				10.000		5.919		1.989			17.908	
Remarks:												

R-1 SHOPPING LIST - Item No. 214

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2002			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0702207N Depot Maintenance (Non-IF)					PROJECT NUMBER AND NAME H2451 P-3 SLAP					
COST ($ in Millions)	Prior Year Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**49.304**		**17.830**	**6.794**	**5.130**	**2.896**					**81.954**
RDT&E Articles Qty											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Current P-3C aircraft fatigue life estimates (from 20,000 to 24,000 flight hours) are based on analysis alone. The P-3 Service Life Assessment Program (SLAP) will perform a full scale fatigue test on a P-3 test article in order to more accurately determine the aircraft fatigue life. After completion of the fatigue test, a destructive test will compare pre-test and post-test analyses. SLAP will identify specific components that require replacement or modification in order to extend the aircraft model's service life beyond its original fatigue life. NRE for fatigue limiting structures will be performed under SLAP to redesign these identified components. This SLAP effort was previously budgeted under APN-5 (BLI 053800) funding within OSIP 02-99.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2001 ACCOMPLISHMENTS:

(U) ($16.003) Continued Fatigue testing.
(U) ($ .150) Continued to provide engineering, quality assurance, and cost schedule status reports. Prepared Service Life Extension Program (SLEP) drawings.
(U) ($ .613) Continued contract support services.
(U) ($ 1.064) Continued Naval Air Warfare Center (NAWC) field support.

2. FY 2002 PLANS:

(U) ($5.671) Continue Fatigue testing.
(U) ($ .100) Continue to provide engineering, quality assurance, and cost/schedule status reports.
(U) ($ .212) Continue contract support services.
(U) ($ .605) Continue Naval Air Warfare Center (NAWC) field support.
(U) ($ .206) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.

3. FY 2003 PLANS:
(U) ($4.468) Initiate Test Article Teardown, Fatigue Life Expended Rebaselining and Structural Data Recording Set (SDRS) Tracking Algorithm.
(U) ($ .050) Continue to provide engineering reports, quality assurance reports and cost/schedule status reports.
(U) ($ .142) Continue contract support services.
(U) ($ .470) Continue Naval Warfare Center (NAWC) field support.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0702207N Depot Maintenance (Non-IF)	H2451 P-3 SLAP

(U) B. PROGRAM CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY2002 President's Budget:	18.826	6.855	
(U) Adjustments from the FY2002 President's Budget:	-0.996	-0.061	
(U) FY2003 President's Budget Submit:	17.830	6.794	5.130

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY2001 net decrease of $0.996 million consists of a decrease of $0.606 million for a Small Business Innovative Research Assessment and a decrease of $0.425 million for reprioritization of requirements within the Navy offset by an increase of $0.035 million for Fatigue testing. The FY2002 decrease of $0.061 million is for an undistributed congressional reduction.

(U) Schedule: Not Applicable.

(U) Technical: Not Applicable

.

(U) C. OTHER PROGRAM FUNDING SUMMARY: Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N / BA-7	0702207N Depot Maintenance (Non-IF)	H2451 P-3 SLAP	

(U) D. ACQUISITION STRATEGY: SLAP was a full and open competition for a fatigue article test. The contract is a cost plus incentive fee (CPIF), therefore providing an incentive to the contractor to effectively manage program cost and schedule. Contract award was March 1999. SLAP supports the Secretary of the Navy's Maritime Patrol Aircraft Ten Year Plan.

(U) E. SCHEDULE PROFILE:

	FY 2001	FY 2002	FY 2003	TO COMPLETE
(U) Program Milestones				
(U) Engineering Milestones	2Q/01 SLEP Data Package	EP-3E Comp. Test 4Q/02	Fatigue Life Expended Rebaseline 3Q/03 SDRS Tracking Algorithm 4Q/03	
(U) T&E Milestones				
(U) Contract Milestones				

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)

DATE: **February 2002**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-7**

PROGRAM ELEMENT: 0702207N Depot Maintenance (Non-IF)

PROJECT NUMBER AND NAME: H2451 P-3 SLAP

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Systems Engineering	C/CPIF	LMAS, GA	45.113	16.153	12/00	5.771	12/01	4.518	12/02	2.585	74.140	74.140
Field Activity Support	WX	NAWCAD, Pax River, MD	2.869	1.064	12/00	0.605	12/01	0.470	12/02	0.245	5.253	
Subtotal Product Development			47.982	17.217		6.376		4.988		2.830	79.393	

Remarks:

Subtotal Support												

Remarks:

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0702207N Depot Maintenance (Non-IF)			PROJECT NUMBER AND NAME H2451 P-3 SLAP						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Subtotal T&E												
Remarks:												
Program Management Support	C/CPIF	Various	1.322	0.613	12/00	0.212	12/01	0.142	12/02	0.066	2.355	2.355
SBIR Assessment						0.206					0.206	
Subtotal Management			1.322	0.613		0.418		0.142		0.066	2.561	
Remarks:												
Total Cost			49.304	17.830		6.794		5.130		2.896	81.954	
Remarks:												

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2002			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME **0702207N Depot Maintenance (Non-IF)**					PROJECT NUMBER AND NAME H 2452 S-3 SLAP					
COST ($ in Millions)	Prior Year Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**34.052**		**5.082**								**39.134**
RDT&E Articles Qty											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The S-3 Service Life Assessment Program (SLAP) (H2452) will determine the present S-3B fatigue life for 112 aircraft which were all procured from 1972-1976. The purpose is to validate the critical structures kit to ensure the aircraft meets its service life goal of FY 2015 and to determine the magnitude of the Service Life Extension Program (SLEP) necessary to extend service life beyond FY 2015. The SLAP will certify an increase of the aircraft fatigue life from 13,000 flight hours to approximately 17,500 flight hours and from 3,000 to 4,300 catapults/arrested landings. This SLAP effort was previously budgeted under APN-5 (BLI 054100) funding within OSIP 12-95.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2001 Accomplishments:

(U) ($ 4.799) Completed SLAP and Full Scale Fatigue Test (FSFT) efforts.
(U) ($ .283) Continued final field activity support for SLAP and Full Scale Fatigue Test (FSFT) efforts.

2. FY 2002 PLANS: Not Applicable.

3. FY 2003 PLANS: Not Applicable.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	702207N Depot Maintenance (Non-IF)	H2452 S-3 SLAP

(U) B. PROGRAM CHANGE SUMMARY:

	FY 2001	FY 2002	FY 2003
(U) FY 2002 President's Budget:	4.575		
(U) Adjustments from FY2002 President's Budget:	0.507		
(U) FY 2003 President's Budget Submit:	5.082		

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2001 net increase of $0.507 million consists of an increase of $0.750 million for the continuation of SLAP/FSFT offset by a decrease of $0.151 million for a Small Business Innovative Research assessment and a decrease of $0.092 million for a reprioritzation of requirements within the Navy.

(U) Schedule: Not Applicable.

(U) Technical: Not Applicable.

(U) C. OTHER PROGRAM FUNDING SUMMARY:

APPN	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	To Complete
APN S-3 (OSIP 12-95)	6.897	4.340	2.500	0.500	0	0	0	0

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME		PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0702207N Depot Maintenance (Non-IF)		H2452 S-3 SLAP

(U) D. ACQUISITION STRATEGY: The S-3 Service Life Assessment Program is a sole source procurement to the Original Equipment Manufacturer, Lockheed Martin of Marietta, GA. A CPIF contract was awarded October 1998.

(U) E. SCHEDULE PROFILE:

	FY 2001	FY 2002	FY 2003	TO COMPLETE
(U) Program Milestones				
(U) Engineering Milestones				
(U) T&E Milestones	Full Scale Test 1Q/01-4Q/01			
(U) Contract Milestones				

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0702207N Depot Maintenance (Non-IF)			PROJECT NUMBER AND NAME H2452 S-3 SLAP							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
FULL SCALE FATIGUE TEST	SS/CPIF	LMAS/Marietta, GA	30.746	4.799	12/00						35.545	35.545
Subtotal Product Development			30.746	4.799							35.545	
Remarks:												
Subtotal Support												
Remarks:												

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 702207N Depot Maintenance (Non-IF)			PROJECT NUMBER AND NAME H2452 S-3 SLAP						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Subtotal T&E												
Remarks:												
Government Engineering Support	WX	NAWC AD	3.229	0.283	12/00						3.512	
Travel	WX		0.077								0.077	
Subtotal Management			3.306	0.283							3.589	
Total Cost			34.052	5.082							39.134	
Remarks:												

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2002			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0702207N, Depot Maintenance (Non-IF)					PROJECT NUMBER AND NAME W2454, AN-ARC-210 RT-1794(C)					
COST ($ in Millions)	Prior Year Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**7.241**		**0.527**	**0.735**							**8.503**
RDT&E Articles Qty											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Project W2454, AN/ARC-210 RT-1794(C): This project provides for the development of radio software modifications required for upgrades to the evolving standards. Annual engineering change proposals to accomplish implementation of additional advanced waveforms, have been planned to maintain interoperability/connectivity with other services, FAA and ICAO (commercial air traffic data links). Implementation of these waveforms is essential and will be accomplished in the Fleet by organizational units via the Memory Loader Verifier System (MLVS). These changes are the responsibility of the radio program for funding, management, and execution.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2001 ACCOMPLISHEMENTS:

- (U) ($ .527) Developed upgrades and initiated Engineering Change Orders (ECO) to meet requirements for improved satellite communications data rates. Upgraded radio hardware to support increased processing and memory requirements allowing for incorporation of waveform upgrades via software. Updated waveforms will include Demand Assigned Multiple Access Satellite Communications (DAMA SATCOM) and digital battlefield interoperability and commercial air traffic management data links.

2. FY 2002 PLANS:

- (U) ($ .713) Complete software and hardware integration lab testing of radio operational software and hardware for acceptance of Demand Assigned Multiple Access Satellite Communications (DAMA SATCOM) and Air Traffic Management data links.
- (U) ($ .022) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.

3. FY 2003 PLANS: Not applicable.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0702207N, Depot Maintenance (Non-IF)	W2454, AN-ARC-210 RT-1794(C)

(U) B. PROGRAM CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget Submit:	0.561	0.742	
(U) Adjustments from the President's Budget:	-0.034	-0.007	
(U) FY 2003 President's Budget Submit:	0.527	0.735	

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2001 decrease of $.034 million consists of a $.006 million decrease in Small Business Innovative Research (SBIR) assessment and a $.028 million decrease for reprioritization of requirements within the Navy. The FY 2002 decrease of $.007 million is for an undistributed congressional reduction.

(U) Schedule: Not Applicable.

(U) Technical: Not Applicable.

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete
Common Avionics, APN	68.405	68.250	63.228	167.464	145.932	147.815	126.692	Continuing

(U) D. ACQUISITION STRATEGY: Sole source to Rockwell Collins, Inc. for the production and enhancement of the AN/ARC-210(V) Electronic Radio Protection radios.

(U) E. SCHEDULE PROFILE: Not Applicable.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2002			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0702207N Platform Follow-on Analysis					PROJECT NUMBER AND NAME W2737 Platform Follow-on Analysis					
COST ($ in Millions)	Prior Years Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	**1.699**		**3.898**								**5.597**
RDT&E Articles Qty											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Multi-mission Maritime Aircraft (MMA) program provides the replacement system(s) for the aging P-3/EP-3 aircraft. The MMA program is intended to meet the Broad Area Maritime and Littoral Armed Intelligence, Surveillance and Reconaissance Mission Need Statement (MNS) which was validated by the Joint Requirements Oversight Council on 29 FEB 00. The MMA program received Milestone 0 approval to proceed into Concept Exploration (CE) on 22 MAR 2000. New start notification was provided to Congress and concept exploration activities began in June, 2000. These activities include an Analysis of Alternatives (AoA) and industry concept exploration studies. A Below Threshold Reprogramming was utilized to support FY2000 activities. FY2001 funding enables continuation and completion of the AoA and industry concept exploration studies.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2001 ACCOMPLISHMENTS:

(U) ($ 1.193) Completed the MMA AoA.
(U) ($ 1.702) Initiated industry Concept Exploration studies for the MMA mission system.
(U) ($ 1.003) Provided engineering support for the MS I acquisition documentation, the AoA, and the industry Concept Exploration studies.

2. FY 2002 PLANS: Not Applicable.

3. FY 2003 PLANS: Not Applicable.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0702207N Platform Follow-on Analysis	W2737 Platform Follow-on Analysis

(U) B. PROGRAM CHANGE SUMMARY:

	FY2001	FY2002	FY2003
(U) FY2002 President's Budget:	4.432		
(U) Adjustments from the FY2002 President's Budget:	-0.534		
(U) FY2003 President's Budget Submit:	3.898		

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY2001 net decrease of $0.534 million consists of a decrease of $0.226 million for a reprioritization of requirements within the Navy and a decrease of $0.308 million for a Small Business Innovation Research assessment.

(U) Schedule: Not Applicable.

(U) Technical: Not Applicable.

(U) C. OTHER PROGRAM FUNDING SUMMARY: Not Applicable.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0702207N Platform Follow-on Analysis	W2737 Platform Follow-on Analysis

(U) D. ACQUISITION STRATEGY: MMA Milestone 0 was approved 22 March 2000 and the resulting Acquisition Decision Memorandum directed MMA to begin the CE phase consisting of an AoA and industry concept studies. These activities have begun and are scheduled to complete in late FY2001 at which time a MS I decision is scheduled, leading to a two-year program definition and risk reduction effort. MS II is scheduled for early FY2004. The MMA program is designed to meet the JROC validated MNS, "Broad Area Maritime and Littoral Armed Intelligence, Surveillance and Reconnaissance". The IOC of NLT 2015 is envisioned. The four FY2000 studies contracts will be competed in FY2001. Five mission system Concept Exploration studies will also be competed.

(U) E. SCHEDULE PROFILE:

	FY 2001	FY 2002	FY 2003	TO COMPLETE
(U) Program Milestones				
(U) Engineering Milestones				
(U) T&E Milestones				
(U) Contract Milestones	Concept Exploration Contract Award 2Q/01			

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0702207N Platform Follow-on Analysis				PROJECT NUMBER AND NAME W2737 Platform Follow-on Analysis						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
AOA	SS/FFP	CNA,VA		1.193	01/01						1.193	1.193
Derivative Concept Study	C/FFP	BOEING Seal Beach, CA	0.493								0.493	0.493
HYBRID Study	C/FFP	Northrup Grumman Bethpage,NY	0.490								0.490	0.490
Remanufacture Concept Study	C/FFP	Ratheon Greenville, TX	0.223								0.223	0.223
Remanufacture Concept Study	C/FFP	LOCKHEED Marietta, GA	0.493								0.493	0.493
Mission System Studies	C/FFP	TBD		0.417	05/01						0.417	0.417
Mission System Studies	C/FFP	TBD		0.417	05/01						0.417	0.417
Mission System Studies	C/FFP	TBD		0.418	05/01						0.418	0.418
Mission System Studies	C/FFP	TBD		0.417	05/01						0.417	0.417
Subtotal Product Development			1.699	2.862							4.561	
Remarks:												
Technical Support	C/FFP	RBC, VA		0.300	12/01						0.300	0.300
Subtotal Support				0.300							0.300	
Remarks:												

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)											DATE: **February 2002**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0702207N Platform Follow-on Analysis			PROJECT NUMBER AND NAME W2737 Platform Follow-on Analysis							
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Subtotal T&E												
Remarks:												
Contractor Engineering Support	WX	NAWCAD, PAX River, MD		0.736	12/01						0.736	
Subtotal Management				0.736							0.736	
Remarks:												
Total Cost			1.699	3.898							5.597	
Remarks:												

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FY 2003 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: February 2002

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0708011N
PROGRAM ELEMENT TITLE: Industrial Preparedness

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 2001 ACTUAL	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
R1050 Manufacturing Technology	67,305	72,459	70,631	71,732	73,870	75,128	76,422	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Manufacturing Technology (MANTECH) Program is intended to improve the productivity and responsiveness of the U.S. defense industrial base by funding the development of manufacturing technologies. The MANTECH program, by providing seed funding for the development of moderate to high risk process and equipment technology, permits contractors to upgrade their manufacturing capabilities. Ultimately, the program aims to produce high-quality weapon systems with shorter lead times and reduced acquisition costs. Major areas of endeavor both underway and planned include: advanced manufacturing technology for electronics assembly, laser metalworking, flexible computer manufacturing, composites, metal working and welding technology. The MANTECH program is being integrated into the Joint Mission Area/Support Area and Joint Warfare Operational Capability process and will utilize the results of these initiatives as appropriate in the program planning process. The MANTECH program is aimed at achieving affordability in the acquisition of weapons systems by inserting manufacturing process solutions early into the design phase to reduce lifecycle costs, improve schedules and ensure quality.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

FY 2003 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: February 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0708011N PROJECT NUMBER: R1050
PROGRAM ELEMENT TITLE: Industrial Preparedness PROJECT TITLE: Manufacturing Technology

1. U) FY 2001 ACCOMPLISHMENTS:

- The Navy MANTECH program executes a significant amount of its projects through the Centers of Excellence. The technical efforts performed are reflected throughout the following taxonomy:

  -- (U) $6,750 - Composites Processing and Fabrication – Initiated a rotorcraft composites affordability initiative. Completed work on the Composites Topside Structures; Enhanced Production Techniques for Low Observable Structures and Materials. Continued work on the Teaching Factory; Rapid Response; Z-Direction Reinforcement for Composite Laminates; Ceramic Matrix Composites; and Resin Transfer Molding. Completed Korex Phase III.

  -- (U) $11,200 - Electronics Processing and Fabrication - Continued AEGIS Electronic Demonstration, Flexible Manufacturing of Microwave Power Module Manufacturing, Learning Center and Demonstration Factory, and the Power Electronic Building Blocks Manufacturing plan. Continued electro-optics efforts in Sapphire Domes, Manufacturing Automation of Monolithic Ring Gyros; and initiated efforts for Fiber Optic Velocity Sensors, Remote Source Lighting Technology, Radio Frequency Photonics for Multi-Function Phased Array Antennas, and Affordable Array Technology Tooling.

  -- (U) $25,400 - Metals Processing and Fabrication – Completed the Centrifugally Cast Titanium/Chromium Bronze Components. Continued the following metalworking projects: Neodymium Ribbon Development, Optimized Atomization of Magnesium Powder, Titanium Alloy Hearth Melting Processing Technology, Optimized High Strength Lightweight Alloy Welding, and Thin Wall Superalloy Structural Castings. Completed Powder Metallurgy and Materials Initiative. Continued the following joining projects: Weld Residual Stress and Distortion, Titanium Welding, Adhesive Bonding Integrity, Knowledge Based Ultrasonic Testing of Welds, and continued rapid response actions. Continued the following materials processing initiatives: Laser Processing of Nickel Aluminum Bronze, Non-Contact High Speed Gear Inspection, Repair/Refurbishment of Fatigue/Wear Limited Navy Structures, Advanced Manufacturing Processes for the Advanced Amphibious Assault Vehicle, and Manufacturing of High Performance of Transmission Housing. Continued a joint effort with the Air Force in Metals Affordability. Continued work on the Propulsor Affordability Initiative.

-- (U) $7,000 - Advanced Manufacturing Enterprise - Continued leveraging the Best Manufacturing Practices and Acquisition Reform Initiatives. Continued efforts in shipbuilding and simulation based design. Continued efforts in Shipboard Sensors; Effective Aluminum Catamaran Structures; Chromium Primer for Aluminum Substrates; and the Environmental Resource Information Center. Continued ongoing and initiated new research efforts in support of the National Shipbuilding Research Program - Advanced Shipbuilding Enterprise. Continued work on the Pathways for Continuous Improvement Program, and Supply Chain Integration.

-- (U) $9,555- Other - Continued projects in the repair technology arena that support the depots and shipyards such as Supercritical CO2 Parts Cleaning, Ball Valve Repair Process Improvement, Shearography System Development, and Reverse and Re-Engineering Technical Data Generation System. Continued the Ammonium Dinitramide and Composite Propellants projects in support of energetic materials. Continue Phase III of the F414 Engine Demonstration Device with General Electric. Continued technical assistant work at the Systems Command's Program Offices and Program Executive Offices. Continued the Shipbuilding Initiative by starting three new projects.

-- (U) $7,400 – Initiated the Surface Strike Affordability Initiative and the Joint Service Microelectrical – Mechanical Sensors (MEMS) Affordability initiatives.

2. U) FY 2002 PLAN:

- The Navy MANTECH program executes a significant amount of its projects through the Centers of Excellence. The technical efforts performed are reflected throughout the following taxonomy:

-- (U) $9,850 - Composites Processing and Fabrication - Continue work on the Rotorcraft Affordability Initiative. Continue work on the Teaching Factory; Rapid Response; Z-Direction Reinforcement for Composite Laminates; Ceramic Matrix Composites; and Resin Transfer Molding.

-- (U) $8,500 - Electronics Processing and Fabrication - Continue AEGIS Electronic Demonstration, Flexible Manufacturing of Microwave Power Module Manufacturing, Learning Center and Demonstration Factory, and the Power Electronic Building Blocks Manufacturing plan. Continue electro-optics efforts in Sapphire Domes, Manufacturing Automation of Monolithic Ring Gyros; Fiber Optic Velocity Sensors, Remote Source Lighting Technology, Radio Frequency Photonics for Multi-Function Phased Array Antennas, and Affordable Array Technology Tooling.

-- (U) $20,000 - Metals Processing and Fabrication - Continue the following metalworking projects: Neodymium Ribbon Development, Optimized Atomization of Magnesium Powder, Titanium Alloy Hearth Melting Processing Technology, Optimized High Strength Lightweight Alloy Welding, and Thin Wall Superalloy Structural Castings. Continue the following joining projects: Weld Residual Stress and Distortion, Titanium Welding, Adhesive Bonding Integrity, Knowledge Based Ultrasonic Testing of Welds, and continue rapid response actions. Continue the following materials processing initiatives: Laser Processing of Nickel Aluminum Bronze, Non-Contact High Speed Gear Inspection, Repair/Refurbishment of Fatigue/Wear Limited Navy Structures, Advanced Manufacturing Processes for the Advanced Amphibious Assault Vehicle, and Manufacturing of High Performance of Transmission Housing. Continue a joint effort with the Air Force in Metals Affordability. Continue work on the Propulsor Affordability Initiative.

-- (U) $8,000 - Advanced Manufacturing Enterprise - Continue leveraging the Best Manufacturing Practices and Acquisition Reform Initiatives. Continue efforts in shipbuilding and simulation based design. Continue efforts in Shipboard Sensors; Effective Aluminum Catamaran Structures; Chromium Primer for Aluminum Substrates; and the Environmental Resource Information Center. Continue ongoing and initiate new research efforts in support of the National Shipbuilding Research Program-Advanced Shipbuilding Enterprise. Continue work on the Pathways for Continuous Improvement Program, and Supply Chain Integration.

-- (U) $10,271 - Other – Continue projects in the repair technology arena that support the depots and shipyards such as Supercritical CO2 Parts Cleaning, Ball Valve Repair Process Improvement, Shearography System Development, and Reverse and Re-Engineering Technical Data Generation System. Continue the Ammonium Dinitramide and Composite Propellants projects in support of energetic materials. Continue Phase III of the F414 Engine Demonstration Device with General Electric. Continue technical assistant work at

the Systems Command's Program Offices and Program Executive Offices. Continue the Shipbuilding Initiative by starting three new projects.

-- (U) $15,838 – Continue the multi-center of excellence executed Surface Strike Affordability Initiative and the Joint Service Microelectrical–mechanical Sensors (MEMS) Affordability initiatives.

3. U) FY 2003 PLAN:

- The Navy MANTECH program executes a significant amount of its projects through the Centers of Excellence. The technical efforts performed are reflected throughout the following taxonomy:

-- (U) $9,000 - Composites Processing and Fabrication - Continue work on the Rotorcraft Affordability Initiative. Continue work on the Teaching Factory; Rapid Response; Z-Direction Reinforcement for Composite Laminates; Ceramic Matrix Composites; and Resin Transfer Molding.

-- (U) 9,000 - Electronics Processing and Fabrication - Continue AEGIS Electronic Demonstration, Flexible Manufacturing of Microwave Power Module Manufacturing, Learning Center and Demonstration Factory, and the Power Electronic Building Blocks Manufacturing plan. Continue electro-optics efforts in Sapphire Domes, Manufacturing Automation of Monolithic Ring Gyros; Fiber Optic Velocity Sensors, Remote Source Lighting Technology, Radio Frequency Photonics for Multi-Function Phased Array Antennas, and Affordable Array Technology Tooling.

-- (U) $22,000 - Metals Processing and Fabrication - Continue the following metalworking projects: Neodymium Ribbon Development, Optimized Atomization of Magnesium Powder, Titanium Alloy Hearth Melting Processing Technology, Optimized High Strength Lightweight Alloy Welding, and Thin Wall Superalloy Structural Castings. Continue the following joining projects: Weld Residual Stress and Distortion, Titanium Welding, Adhesive Bonding Integrity, Knowledge Based Ultrasonic Testing of Welds, and continue rapid response actions. Continue the following materials processing initiatives: Laser Processing of Nickel Aluminum Bronze, Non-Contact High Speed Gear Inspection, Repair/Refurbishment of Fatigue/Wear Limited Navy Structures, Advanced Manufacturing Processes for the Advanced Amphibious Assault Vehicle, and

Manufacturing of High Performance of Transmission Housing. Continue a joint effort with the Air Force in Metals Affordability. Continue work on the Propulsor Affordability Initiative.

-- (U) $8,000 - Advanced Manufacturing Enterprise - Continue leveraging the Best Manufacturing Practices and Acquisition Reform Initiatives. Continue efforts in shipbuilding and simulation based design. Continue efforts in Shipboard Sensors; Effective Aluminum Catamaran Structures; Chromium Primer for Aluminum Substrates; and the Environmental Resource Information Center. Continue ongoing and initiate new research efforts in support of the National Shipbuilding Research Program-Advanced Shipbuilding Enterprise. Continue work on the Pathways for Continuous Improvement Program, and Supply Chain Integration.

-- (U) $5,246 - Other – Continue projects in the repair technology arena that support the depots and shipyards such as Supercritical CO2 Parts Cleaning, Ball Valve Repair Process Improvement, Shearography System Development, and Reverse and Re-Engineering Technical Data Generation System. Continue the Ammonium Dinitramide and Composite Propellants projects in support of energetic materials. Continue Phase III of the F414 Engine Demonstration Device with General Electric. Continue technical assistant work at the Systems Command’s Program Offices and Program Executive Offices. Continue the Shipbuilding Initiative by starting three new projects.

-- (U) $17,385 – Continue the multi-center of excellence executed Surface Strike Affordability Initiative and the Joint Service Microelectrical–mechanical Sensors (MEMS) Affordability initiatives. Initiate efforts/studies to support the Navy’s Future Naval Capabilities.

B. (U) PROGRAM CHANGE SUMMARY: (U)

	FY 2001	FY 2002	FY 2003
(U) FY 2002 President’s Budget:	68,987	70,605	
(U) Adjustments from FY 2002 PRESBUDG:			
(U) Small Business Innovation Research	-1,682	-	
(U) Congressional Increase	-	2,500	
(U) Section 8123 Management Reform/Initiative Reduction	-	-646	

FY 2003 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: February 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0708011N PROJECT NUMBER: R1050
PROGRAM ELEMENT TITLE: Industrial Preparedness PROJECT TITLE: Manufacturing Technology

(U) FY 2003 President's Budget Submission:	67,305	72,459	70,631

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: Not applicable.

(U) RELATED RDT&E:
(U) PE 0708011F (Industrial Preparedness)
(U) PE 0708045A (End Item Industrial Preparedness Activities)
(U) PE 0708011S (Industrial Preparedness)

D. (U) SCHEDULE PROFILE: Not applicable.

FY 2003 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: February 2002

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0708011N PROJECT NUMBER: R1050
PROGRAM ELEMENT TITLE: Industrial Preparedness PROJECT TITLE: Manufacturing Technology

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 2001	FY 2002	FY 2003
a. Process Development	62,079	67,059	64,631
b. Program Management Support	5,226	5,400	6,000
Total	67,305	72,459	70,631

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-7**					R-1 ITEM NOMENCLATURE NAT'L SHIPBLDG RES PROG ADVANCED SHIPBLDG ENTERPRISE/0708730N					
COST ($ in Millions)		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Total PE Cost		**9.013**	**33.269**	**9.943**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**91.129**
NSRP ASE/S2466/S2811		**9.013**	**22.366**	**9.943**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**80.226**
High Speed Cargo Craft/R9120		**0.000**	**3.965**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**3.965**
Maritime Tech, Ship Design & Sys Develop Init/R9121		**0.000**	**6.938**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**6.938**
Quantity of RDT&E Articles		**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**

A. Mission Description and Budget Item Justification:

Project S2466/S2811 (NSRP ASE): The mission of the National Shipbuilding Research Program Advanced Shipbuilding Enterprise (NSRP ASE) is to manage and focus national research funding on technologies that will enhance U.S. commercial shipbuilding competitiveness and reduce the cost of naval ships.

Industry has developed a landmark long range Strategic Investment Plan which will guide NSRP ASE investments. This Strategic Investment Plan provides a framework to guide collaborative research and development among all segments of the U.S. ship construction and repair industry, educational and research institutions, and Government. The objective is to assist the industry in achieving significant reduction in the cost and time required for both commercial and Navy ship construction, conversion, and repair. The recommended investment portfolio includes major initiatives that tie the strategic vision to proposed industry research through collaborative R&D. The major initiatives include: Shipyard Production Process Technologies, Business Process Technologies, Product Design and Material Technologies, Systems Technologies, Facilities and Tooling. Additionally, several critical success factors were found to cut across all of the major initiatives. These “Crosscut Initiatives” include Education and Training, Technology Transfer, Organizational Change, Environmental Protection and Human Resources.

The collaboration of major shipyards that lead the program are: Electric Boat Corporation, Bath Iron Works, Newport News Shipbuilding, Atlantic Marine, Northrop Grumman Litton Ingalls Shipbuilding, Friede/Goldman/Halter Marine, Northrop Grumman Litton Avondale, NASSCO, Todd Pacific, Cascade General and Bender Shipbuilding.

Project R9120 (High Speed Cargo Craft): Develop and conduct an experimentation program utilizing a High Speed Vessel (HSV-X1) to explore the operational ramifications of new technologies and advanced ship designs for littoral operations. This experimentation program employs a leased Bollinger/Incat wave piercing catamaran as a surrogate High Speed Vessel to explore the potential impact of significant improvements in operating speed, reduced draft, payload/mission module flexibility, low cr4w manning, range, and payload fraction. This experimentation will investigate the potentially transformational impact of these improved characteristics in the context of current warfare mission capabilities and future operational concepts which would be enabled.

Continued on Page 2 of 15

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: February 2002
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-7**	R-1 ITEM NOMENCLATURE NAT'L SHIPBLDG RES PROG ADVANCED SHIPBLDG ENTERPRISE/0708730N

Project R9120 (High Speed Cargo Craft): Continued from Page 1 of 15
The Navy Warfare Development Command (NWDC); U.S. Army Combined Arms Support Command; Office of Naval Research (ONR); the Marine Corps Plans, Policies, and Operations Department; Navy Special Warfare Command and the U.S. Coast Guard Deep Water Project Program have agreed to cooperate in a joint experimentation effort to explore and develop this kind of technology. The 12-24 month experimentation phase will be coordinated by NWDC, in close partnership with other elements of the U.S. Navy, the U.S. Marine Corps, U.S. Army and U.S. Coast Guard. These commands and others will develop the experimentation plan that incorporates all the research objectives from each of the services to include joint experimentation in Millennium Challenge 02, the major Joint experimentation venue led by Joint Forces Command. The services will also work together to consolidate the analytical talent to both build the experiments and analyze results. Members of the experimentation team expect to conclude this joint experimentation effort with an understanding of where these technologies can best be applied across our respective mission spectrums. At that point, each partner will be able to much more accurately define and articulate the capabilities they need to include in the future ships that will optimize the advantages of these technologies. These insights will be used to determine the characteristics of the next generation of experimental littoral craft.

Project R9121 (Ship Design and Systems Development Initiative): Develop a cooperative research effort to improve the quality of shipyard products, efficiency of shipyard production and introduce advanced ship system designs. Thrust areas for this effort include: 1) Lean/agile manufacturing; 2) Shipyard Production Process Automation; 3) Shipyard Production Process Improvement; 4) Ship Design and Production Simulation and Visualization; 5) Education and Training; 6) Application of Advanced Materials to Ship Design and Manufacturing; 7) Design and Application of Advanced Ship Systems. A team of Navy, University of New Orleans, and Northrop Grumman Ship Systems (Avondale) personnel will prioritize potential research projects supporting these thrust areas and oversee project execution to ensure program goals are being met.

EXHIBIT R-2a, RDT&E Project Justification								DATE: **February 2002**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA-7**	PROGRAM ELEMENT NAME AND NUMBER NSRP ASE/0708730N			PROJECT NAME AND NUMBER NSRP ASE/S2466/S2811					
COST ($ in Millions)		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Project Cost		**9.013**	**22.366**	**9.943**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**80.226**
RDT&E Articles Qty		**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**

A. Mission Description and Budget Item Justification

The mission of the National Shipbuilding Research Program Advanced Shipbuilding Enterprise (NSRP ASE) is to manage and focus national research funding on technologies that will enhance U.S. commercial shipbuilding competitiveness and reduce the cost of naval ships.

Industry has developed a landmark long range Strategic Investment Plan which will guide NSRP ASE investments. This Strategic Investment Plan provides a framework to guide collaborative research and development among all segments of the U.S. ship construction and repair industry, educational and research institutions, and Government. The objective is to assist the industry in achieving significant reduction in the cost and time required for both commercial and Navy ship construction, conversion, and repair. The recommended investment portfolio includes major initiatives that tie the strategic vision to proposed industry research through collaborative R&D. The major initiatives include: Shipyard Production Process Technologies, Business Process Technologies, Product Design and Material Technologies, Systems Technologies, Facilities and Tooling. Additionally, several critical success factors were found to cut across all of the major initiatives. These “Crosscut Initiatives” include Education and Training, Technology Transfer, Organizational Change, Environmental Protection and Human Resources.

The collaboration of major shipyards that lead the program are: Electric Boat Corporation, Bath Iron Works, Newport News Shipbuilding, Atlantic Marine, Northrop Grumman Litton Ingalls Shipbuilding, Friede/Goldman/Halter Marine, Northrop Grumman Litton Avondale, NASSCO, Todd Pacific, Cascade General and Bender Shipbuilding.

FY 2001 ACCOMPLISHMENTS: (9,013K)

- (U) (4,676K) Continued technology development projects in the six major initiative areas selected from Research Announcement One (13 projects).
- (U) (3,737K) Continued technology development projects in the six major initiative areas selected from Research Announcement Two.
- (U) (300K) Continued utilization of industry-led major initiative teams to perform the execution and annual review of the Strategic Investment Plan, including technology transfer among the Navy, the shipbuilding industry, academia, equipment and material suppliers and the R&D community.
- (U) (125K) Initiated transition of projects to shipbuilding programs.
- (U) (150K) Operated multi-agency support office to facilitate technology transfer between Government and industry.
- (U) (25K) Completed close out of DARPA MARITECH and NSRP projects that transferred to NSRP ASE.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NAME AND NUMBER	PROJECT NAME AND NUMBER
RDT&E, N/BA-7	NSRP ASE/0708730N	NSRP ASE/S2466/S2811

FY 2002 PLAN: (22,366K)
- (U) (9,100) Complete all remaining technology development projects in the six major initiative areas selected from Research Announcement One (13 projects).
- (U) (12,456) Continue technology development projecrts in the six major initiative areas selected from Research Announcement Two.
- (U) (400K) Continue utilization of industry-led major initiative teams to perform the execution and annual review of the Strategic Investment Plan, including technology transfer among the Navy, shipbuilding industry, academia, equipment and material suppliers and the R&D community.
- (U) (250K) Continue transition of projects to shipbuilding programs.
- (U) (160K) Operate multi-agency support office to facilitate technology transfer between Government and industry.

FY 2003 PLAN: (9,943K)
- (U) (9,133K) Continue technology development projecrts in the six major initiative areas selected from Research Announcement Two.
- (U) (400K) Continue utilization of industry-led major initiative teams to perform the execution and annual review of the Strategic Investment Plan, including technology transfer among the Navy, shipbuilding industry, academia, equipment and material suppliers and the R&D community.
- (U) (250K) Continue transition of projects to shipbuilding programs.
- (U) (160K) Operate multi-agency support office to facilitate technology transfer between Government and industry.

B. Program Change Summary:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget:	9.280	20.065	
(U) Appropriated Value:	9.366	20.065	
Adjustments to FY 2001/2002 Appropriated Value/FY2002 : President's Budget:	-0.353	2.301	
(U) FY 2003 President's Budget:	9.013	22.366	9.943

Change Summary Explanation:

(U) Funding: FY01: $-243K SBIR reduction, $-66K .7% Pro-Rata, $-20K Government Wide Rescission, $-24K 01 Actuals.
FY02: $2,500 Congressional plus-up, $-199K Management Reform Initiatives

(U) Schedule: Not Applicable

(U) Technical: Not Applicable

C. Other Program Funding Summary (Related RDT&E): DARPA P.E. 0603746E (MARITECH) - NSRP ASE follows the original DARPA MARITECH program. Work remaining under the original DARPA program has transitioned to the NSRP ASE program.

D. Acquisition Strategy: R&D projects have been solicited and awarded by an industry collaboration represented by the Executive Control Board (ECB) of the National Shipbuilding Research Program (NSRP). The Navy has entered into an agreement with the industry collaboration using "other transaction" authority pursuant to 10 U.S.C. 2371.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NAME AND NUMBER	PROJECT NAME AND NUMBER	
RDT&E, N/BA-7	NSRP ASE/0708730N	NSRP ASE/S2466/S2811	

E. Schedule Profile:

	FY 2001	FY 2002	FY 2003
Engineering Milestones: N/A T&E Milestones: N/A Contract Milestones:			
Other Program Events:	Continuation, completion and technology transfer of shipbuilding process projects. 3Q Annual Update of Strategic Invest. Plan	Continuation, completion and technology transfer of shipbuilding process projects. 3Q Annual Update of Strategic Invest. Plan	Continuation, completion and technology transfer of shipbuilding process projects. 3Q Annual Update of Strategic Invest. Plan

Exhibit R-3 Cost Analysis (page 1)										DATE: **February 2002**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N**			PROGRAM ELEMENT NSRP ASE - PE 0708730N			PROJECT NAME AND NUMBER NSRP ASE/S2466/S2811						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Technology Development	SS OT*	ECB NSRP**	34.406	8.663	VARIOUS	22.136	VARIOUS	9.713	VARIOUS	0.000	74.918	74.918
Subtotal Product Development			34.406	8.663		22.136		9.713		0.000	74.918	74.918
Remarks: * Other Transactions IAW 10 USC 2371												
Gov't Support Serv/Other Agencies	MIPR/WR	MARAD	2.448	0.050	1Q00	0.050	1Q01	0.050	1Q01	0.000	2.598	2.598
Support Services Revolving Accts	MIPR/WR	VARIOUS	0.546	0.180	1Q00	0.050	1Q01	0.050	1Q01	0.000	0.826	0.826
Subtotal Support			2.994	0.230		0.100		0.100		0.000	3.424	3.424
Remarks:												

Exhibit R-3 Cost Analysis (page 2) | DATE: **February 2002**

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT	PROJECT NAME AND NUM
RDT&E, N	NSRP ASE - PE 0708730N	NSRP ASE/S2466/S2811

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
Contract Support Services												
Technology Development	Reqn*	TRW/Schafer Corp.	0.810	0.000		0.000		0.000		0.000	0.810	0.810
Technology Development	SS	PSU/APL	0.175	0.100	1Q01	0.110	1Q01	0.110	1Q01	0.000	0.495	0.495
PM Support	RC	NASSCO	0.070	0.000		0.000		0.000		0.000	0.070	0.070
NSNET	RC	University of Michigan	0.400	0.000		0.000		0.000		0.000	0.400	0.400
Travel			0.049	0.020	VARIOUS	0.020	VARIOUS	0.020	VARIOUS	0.000	0.109	0.109
Subtotal Management			1.504	0.120		0.130		0.130		0.000	1.884	1.884
Remarks: * Procure under GSA Schedule												
Total Cost			38.904	9.013		22.366		9.943		0.000	80.226	80.226
Remarks:												

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA-7**	PROGRAM ELEMENT NAME AND NUMBER NSRP ASE/0708730N				PROJECT NAME AND NUMBER High Speed Cargo Craft/R9120					
COST ($ in Millions)		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Project Cost		**0.000**	**3.965**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**3.965**
RDT&E Articles Qty		**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**

A. Mission Description and Budget Item Justification:

Project R9120 (High Speed Cargo Craft): Develop and conduct an experimentation program utilizing a High Speed Vessel (HSV-X1) to explore the operational ramifications of new technologies and advanced ship designs for littoral operations. This experimentation program employs a leased Bollinger/Incat wave piercing catamaran as a surrogate High Speed Vessel to explore the potential impact of significant improvements in operating speed, reduced draft, payload/mission module flexibility, low cr4w manning, range, and payload fraction. This experimentation will investigate the potentially transformational impact of these improved characteristics in the context of current warfare mission capabilities and future operational concepts which would be enabled.

The Navy Warfare Development Command (NWDC); U.S. Army Combined Arms Support Command; Office of Naval Research (ONR); the Marine Corps Plans, Policies, and Operations Department; Navy Special Warfare Command and the U.S. Coast Guard Deep Water Project Program have agreed to cooperate in a joint experimentation effort to explore and develop this kind of technology. The 12-24 month experimentation phase will be coordinated by NWDC, in close partnership with other elements of the U.S. Navy, the U.S. Marine Corps, U.S. Army and U.S. Coast Guard. These commands and others will develop the experimentation plan that incorporates all the research objectives from each of the services to include joint experimentation in Millennium Challenge 02, the major Joint experimentation venue led by Joint Forces Command. The services will also work together to consolidate the analytical talent to both build the experiments and analyze results. Members of the experimentation team expect to conclude this joint experimentation effort with an understanding of where these technologies can best be applied across our respective mission spectrums. At that point, each partner will be able to much more accurately define and articulate the capabilities they need to include in the future ships that will optimize the advantages of these technologies. These insights will be used to determine the characteristics of the next generation of experimental littoral craft.

FY 2001 Accomplishments: N/A

FY 2002 PLAN:
- (U) ($3,965) Initiate and execute experimentation program utilizing HSV-X1

FY 2003 PLAN: N/A

B. Program Change Summary:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget			
(U) Appropriated Value:		4.000	
(U) Adjustments to FY 2001/2002 Appropriated Value/ President's Budget:		-0.035	
(U) FY 2003 President's Budget:		3.965	

Change Summary Explanation:
(U) Funding: FY02: $-35K management reform initiatives

(U) Schedule: Not Applicable

(U) Technical: Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA-7**	PROGRAM ELEMENT NAME AND NUMBER NSRP ASE/0708730N	PROJECT NAME AND NUMBER High Speed Cargo Craft/R9120	

C. Other Program Funding Summary: None

D. Acquisition Strategy: N/A

E. Schedule Profile:

	FY 2001	FY 2002	FY 2003
Engineering Milestones: N/A			
T&E Milestones: N/A			
Contract Milestones:			
Other Program Events:		Execute experimentation program and conduct analysis of mission areas.	

Exhibit R-3 Cost Analysis (page 1) | DATE: **February 2002**

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT	PROJECT NAME AND NUMBER
RDT&E, N/BA-7	Maritime Technology 0708730N	High Speed Cargo Craft/R9120

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal			0.000	0.000		0.000		0.000		0.000	0.000	
Gov't Support Serv/Other Agencies	N/A	NWDC				1.965	2Q02				1.965	
Gov't Support Serv/Other Agencies	N/A	ONR				2.000	2Q02				2.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Support			0.000	0.000		3.965		0.000		0.000	3.965	

Remarks: Experimentation program will be executed by the Navy Warfare Development Command. Work related to the preparation of operational/developmental systems and operational experimentation articles will be coordinated by the Office of Naval Research.

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA-7**			PROGRAM ELEMENT Maritime Technology 0708730N			PROJECT NAME AND NUMBER High Speed Cargo Craft/R9120		Maritime Technology,				
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation											0.000	
Operational Test & Evaluation											0.000	
Tooling											0.000	
GFE											0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support											0.000	
Travel											0.000	
Labor (Research Personnel)											0.000	
Overhead											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Total Cost						3.965					3.965	
Remarks:												

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA-7**	PROGRAM ELEMENT NAME AND NUMBER NSRP ASE/0708730N				PROJECT NAME AND NUMBER Ship Design and Systems Development Initiative/R9121					
COST ($ in Millions)		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Project Cost		**0.000**	**6.938**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**6.938**
RDT&E Articles Qty		**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**

A. Mission Description and Budget Item Justification:

Develop a cooperative research effort to improve the quality of shipyard products efficiency of shipyard production and introduce advanced ship system designs. Thrust areas for this effort include: 1) Lean/agile manufacturing; 2) Shipyard Production Process Automation; 3) Shipyard Production Process Improvement; 4) Ship Design and Production Simulation and Visualization; 5) Education and Training; 6) Application of Advanced Materials to Ship Design and Manufacturing; 7) Design and Application of Advanced Ship Systems. A team of Navy, University of New Orleans, and Northrop Grumman Ship Systems (Avondale) personnel will prioritize potential research projects supporting these thrust areas and oversee project execution to ensure program goals are being met.

FY 2001 ACCOMPLISHMENTS: N/A

FY 2002 PLAN:
- (U) ($6,938) Initiate and execute research projects supporting the thrust areas.

FY 2003 PLAN: N/A

B. Program Change Summary:

	FY2001	FY2002	FY2003
(U) FY 2002 President's Budget			
(U) Appropriated Value:		7.000	
(U) Adjustments to FY 2001/2002 Appropriated Value/ President's Budget:		-0.062	
(U) FY 2003 President's Budget:		6.938	

Change Summary Explanation:
(U) Funding: FY02: $-62K management reform initiatives

(U) Schedule: Not Applicable

(U) Technical: Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NAME AND NUMBER	PROJECT NAME AND NUMBER
RDT&E, N/BA-7	NSRP ASE/0708730N	Ship Design and Systems Development Initiative/R9121

C. Other Program Funding Summary: None

D. Acquisition Strategy: R&D will be executed through the Gulf Coast Region Maritime Technology Center Cooperative Agreement with the University of New Orleans.

E. Schedule Profile:

	FY 2001	FY 2002	FY 2003
Engineering Milestones: N/A			
T&E Milestones: N/A			
Contract Milestones:			
Other Program Events:		Initiate program, define and execute research projects with thrust areas.	

Exhibit R-3 Cost Analysis (page 1) | DATE: **February 2002**

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT	PROJECT NAME AND NUMBER
RDT&E, N/BA-7	Maritime Technology 0708730N	Ship Design and Systems Development Initiative R9121

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
											0.000	
											0.000	
Technology Development	CA	University of New Orleans	0.000	0.000		6.738	2Q02	0.000			6.738	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Technology Development			0.000	0.000		6.738		0.000		0.000	6.738	

Remarks: Work will be executed by the University of New Orleans through the Gulf Coast Region Maritime Technology Center Cooperative Agreement with ONR. Northrop Grumman Ship Systems (Avondale) will be the key subrecipient and will play a large role in this project.

Development Support Equipment											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
GFE											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	

Remarks:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA-7**			PROGRAM ELEMENT Maritime Technology 0708730N			PROJECT NAME AND NUMBER Maritime Technology, Ship Design and Systems Development Initiative R9121						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation											0.000	
Operational Test & Evaluation											0.000	
Tooling											0.000	
GFE											0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support						0.170	2Q02				0.170	
Travel						0.030	2Q02				0.030	
Labor (Research Personnel)											0.000	
Overhead											0.000	
Subtotal Management			0.000	0.000		0.200		0.000		0.000	0.200	
Remarks:												
Total Cost						6.938					6.938	
Remarks:												